

Examining the effects of a Daily Writing Intervention on
Perceived Social Support and Depressive Symptoms

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Abstract

Clinical depression is an illness that affects millions of people worldwide (Kessler et al., 2003; Weissman et al., 1996). It accounts for a large portion of health burden worldwide and greatly impacts the lives of many individuals, both directly and indirectly. Due to its widespread prevalence and large, negative impact, there has been much research examining its causes, as well as viable treatment options. It has been demonstrated that one important factor related to depressive symptomatology is low perceptions of social support (e.g., Grav, Hellèzen, Romild, & Stordal, 2011; Lakey, Drew, & Sirl, 1999). According to Coyne's (1967a) interpersonal theory of depression, individuals with depression tend to view themselves as having little social support, which results in excessive reassurance seeking behaviours. This means that they excessively seek reassurance from others about whether they care for them or not. At the same time, individuals with depressive symptoms tend to view the reassurance that they receive as insincere. The theory also proposes that individuals with depression are then likely to be rejected by important others, which may lead to actual decreases in available social support.

Although there has been an abundant amount of research on treatment options for depression, national and international surveys have shown that only a small proportion of individuals with depressive symptoms actually seek or receive treatment for their symptoms (e.g., Layous, Chancellor, Lyubomirsky, Wang, & Doriaswamy, 2011). Furthermore, most treatments are aimed at addressing depressive *symptoms* rather than specific vulnerability factors, such as perceived social support. Such interventions might be helpful in the absence of clinical levels of depressive symptoms. Thus, the studies in this dissertation aimed to examine an alternative or supplementary intervention. Specifically, the intervention was designed to increase perceptions of social support by having individuals write about instances of received social

support on a daily basis for four days. This intervention was delivered in an online format, which allows for easy access for individuals interested in using this intervention in the future.

This dissertation project includes one quantitative and one qualitative study to examine the intervention in two samples of undergraduate students. The purpose of these two studies was to help to establish a base line of evidence to help determine if the writing intervention is a viable option for the relief of depressive symptoms, and to conduct an initial examination of the possible process of effectiveness of this intervention.

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Chapter 1: General Introduction

The Effects of Depression

Clinical depression (also known as Major Depressive Disorder) is a psychiatric disorder characterized by pervasive low mood, loss of interest in usual activities, and diminished ability to experience pleasure. In addition, it involves a combination of other cognitive, behavioural, or physical symptoms including feelings of worthlessness or guilt, difficulty with concentration, changes in sleep, appetite, or weight, loss of energy or fatigue, and recurrent thoughts of death (American Psychiatric Association [APA], 2013). Depression is a major burden on society, both in terms of health care costs and the economic costs of lost productivity, and it also has a significant negative impact on quality of life (Grav et al., 2011; Ustun, Ayuso-Mateos, Chatterji, Matthers, & Murray, 2004). It is currently ranked as the third leading cause of disability worldwide by the World Health Organisation (WHO), and it is projected to be *the* leading cause by the year 2030 (WHO, 2008). In 2002 alone, 4.8% of Canadian individuals aged 15 or older met criteria for at least one major depressive episode in the 12 months prior to interview (Statistics Canada, 2002). Multi-national epidemiological studies of depression have found lifetime prevalence rates ranging from 1.5% to 19.0%, with higher rates generally being found in more developed countries (Kessler et al., 2003; Weissman et al., 1996).

Depression has been shown to negatively impact education, work attendance, and the economy. It has been associated with a 60% increased chance of not completing high school as compared to individuals without depression (Kessler, 2012). Additionally, it has been associated with more days of missed work and decreased productivity while at work (Dunlop, Manheim, Song, Lyons, & Chang, 2005; Pincus & Petit, 2001). In World Mental Health Surveys conducted by the WHO (Alonso et al., 2011), depression was linked with approximately 5% of work days

missed, which is by far the largest amount of days missed due to a mental health problem (with the next largest amount being associated with Panic Disorder at 2.6%). Two studies in the United States estimate the annual economic burden of depression due to lost productivity to be between \$30.1 billion and \$51.5 billion (Greenberg et al., 2003; Stewart, Ricci, Chee, Hahn, & Morganstein, 2003).

Depression has been shown to be related to many different negative interpersonal outcomes. For example, it has been shown to be a “contagious” disorder, since people who are close to the depressed person are likely to either have or to develop the disorder as well. This effect has been shown to occur within the family, propagating from one generation to the next (e.g., Cicchetti & Toth, 1998; Cummings & Davies, 1994; Hammen, Shih, & Brennan, 2004; Pilowsky, Wickramaranthe, Nomura, Weissman, 2006), as well as between roommates and romantic partners (e.g., Coyne, Kessler, Tal, Turnbull, Wortman, & Creden, 1987; Joiner, 1994; Joiner, Alfano, & Metalsky, 1992). Parental depression has also been shown to increase children’s risk of developing conduct disorder problems as well as family discord (e.g., Chronis et al., 2007; Pilowsky et al., 2006). Additionally, depression has been linked to interpersonal rejection, with those who are depressed being likely to be rejected by friends, significant others, and even strangers (e.g., Downey, Freitas, Michaelis, & Khouri, 1998; Joiner & Katz, 1999; Starr & Davila, 2008), and has been predictive of poorer overall relationship functioning (e.g., Carnelley, Pietromonaco, & Jaffe, 1994).

Major depression is also associated with an elevated risk for early death (Cuijpers & Schoevers, 2004). This increased mortality rate is due in part to the high suicide risk associated with depression, with up to 15% of individuals with a severe diagnosis dying by suicide (APA, 2000), but is also due in part to the common comorbidity of depression with many major

physical health problems (e.g., coronary heart disease; Cuijpers & Schoevers, 2004; van der Kooy, van Hout, Marwijk, Marten, Stehouwer, & Beekman, 2007; Wulsin & Singal, 2003). Evidence suggests that people suffering from a physical health problem and depression may be at increased risk of death compared to those with the physical health problem alone, with theories suggesting that depression may lead to deficiencies in immune functioning (Cuijpers & Schoevers, 2004). Given the impact that depression can have on health, it is important that steps be taken to reduce the number of people affected by this disorder.

Despite the fact that around 20% of people who experience a single Major Depressive Episode (MDE) then recover without experiencing another (Andrews, 2001), there is a substantial amount of people (~25%) who develop a more chronic course of the disorder (Rubio, et al., 2011), and 60-80% of individuals who experience one episode are expected to experience a second episode (Coryell & Winokur, 1992; Frank et al., 1990). After experiencing two or more episodes, chances of recurrence increase, with 90% of individuals who experience three episodes being expected to experience a fourth. The complete remission of symptoms has also shown to be slow: 40% of individuals have sufficient symptoms to meet criteria for Major Depression one year after the diagnosis (APA, 2000). Additionally, some research has demonstrated that the most common course of depression is recurrent and without full inter-episode recovery (e.g., Keller & Boland, 1998; Keller et al., 1995; Solomon et al., 2000).

The above findings taken together indicate that a large number of people around the world are likely to experience at least one episode of depression, and many of those people are likely to experience a more chronic and recurrent course of the illness. This not only affects the individuals who experience its symptoms, but also has a major impact on the economy, health care system, and others around them. The study of factors that put individuals at risk for

developing depression is clearly merited, as any advances in our understanding of depression can help in the development of new treatments and preventions of this debilitating and costly disorder. Additionally, it is important that new methods of treating depression are explored as there are a large number of individuals with depressive symptoms who do not seek or receive treatment (e.g., Corrigan, 2004; Kessler et al., 2001; Layous et al., 2011; Reiger et al., 1993). It is also important to note that even those with subclinical levels of depressive symptoms suffer ill effects similar to those with more severe symptoms.

The effects of subclinical depression. Although the findings presented above point to the negative effects of a depressive disorder meeting diagnostic criteria, it is worth recognizing that even subclinical depression and minor depressive symptomatology have been associated with negative outcomes. In fact, studies have demonstrated that in many cases, it is difficult to separate out the negative effects of depression meeting diagnostic criteria from the effects of subclinical forms (e.g., Ayuso-Mateos, Nuevo, Verdes, Naidoo, & Chatterji, 2010; Broadhead, Blazer, George, & Tse, 1990; Cuijpers & Smit, 2008). Subclinical depression has been associated with poorer performance at work and school (Kessler, Zhao, Blazer, & Swartz, 1997; Logan, Simons, Kaczynski, 2009; Martin, Blum, Beach, & Roman, 1996; Rivas, Nuevo, & Ayuso-Mateos, 2011), a high rate of days of lost productivity (Broadhead et al., 1990; Rivas et al., 2011; Rivas Rodríguez, Nuevo, Chatterji, & Ayuso-Mateos, 2012), decreased cognitive performance (Baer et al., 2012; Sedek & von Heckler, 2004), decreased social and personal functioning (Allart-van Dam, Hosman, Hoogduin, & Schaap, 2003; Gotlib, Lewinsohn, & Seeley, 1995; Hammen et al., 2004; McClure, Rogeness, & Thompson, 1997; Rivas et al., 2011), increased behavioural problems (McClure et al., 1997), increased risk for cardiovascular difficulties (Blumenthal & Lett, 2005; Kubzansky, Davidson, & Rozanski, 2005), low self-

esteem (McClure et al., 1997), increased suicide ideation (Cukrowicz et al., 2011), overall poor health (Ayuso-Mateos et al., 2010; Lehoux & Abbott, 2011; Rivas Rodríguez et al., 2012), more frequent use of health services (Allart-van Dam et al., 2003; Rivas et al., 2011; Rivas Rodríguez et al., 2012), and increased mortality rates (Blazer, 2003; Cuijpers & Smit, 2002). In addition to all of these negative effects of subclinical depression, those who experience it as adolescents are much more likely to experience clinical levels of Major Depression in adulthood (Blazer, 2003; Hammen et al., 2004; Hoek, 2012; McClure et al., 1997; Saluja et al., 2004). These outcomes are in fact very similar to those associated with Major Depression. However, unlike individuals who have a diagnosable disorder, those with subclinical levels of depression are less likely to seek, be referred for, or to receive treatment (Hoek, 2012; McClure et al., 1997), with one study suggesting that only 6.8% of those with subclinical depression seek treatment for their symptoms (Sihvola et al., 2007). Additionally, symptoms are less likely to be noticed by others, and therefore, individuals who experience symptoms at this level are also less likely to receive external support in regards to their symptoms (McClure et al., 1997; Mehl, 2006). This has led some to argue that the effects of subclinical depression are at least as serious as the effects of depression at diagnosable levels (e.g., Ayuso-Mateos et al., 2010; Broadhead et al., 1990; Cuijpers & Smit, 2002, 2008; Cukrowicz et al., 2011; Gotlib et al., 1995; Kessler et al., 1997; Rivas et al., 2011; Rivas Rodríguez et al., 2012).

Due to the fact that even minor depressive symptomatology is associated with many negative outcomes, this dissertation will focus on the full range of depressive symptomatology, instead of focusing solely on Major Depression. Thus, throughout this document, the word “depression” will be used to refer not only to the diagnosable disorder, but to subclinical forms as well. This means that participants in the proposed studies will not be diagnosed with Major

Depression per se, but instead will fall on a continuum of depressive symptoms, ranging from no symptoms up to a clinically significant level of symptoms. By recruiting undergraduate student samples, the participants in the studies of this dissertation were more likely to have mild or subclinical depressive symptoms.

Interpersonal Theories of Depression

Coyne (1976a) was one of the first researchers to conceptualize depression as an interpersonal illness. His theory proposed that depressive symptoms cause doubts about one's self-worth and one's relationships, and thus a person with depression will start to excessively seek reassurance from his or her support providers (i.e., interpersonal attachments). Individuals would then see any reassurance provided to them as insincere and therefore, their reassurance seeking behaviours would increase, as they feel that they need to be "sincerely" reassured. These increases in reassurance seeking behaviours then cause the support providers to begin to negatively evaluate, avoid, and reject the depressed person. Consequently, the depressed person's suspicions about not being accepted will be confirmed, and their symptoms will begin to worsen as a result of the others' rejection and avoidance of them.

This theory can be separated into sections, as in the following diagram:

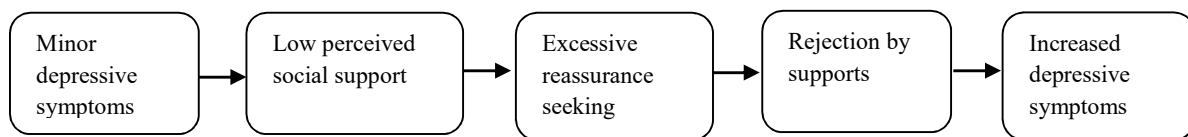


Figure 1.1. Diagram of Coyne's Interpersonal Theory of Depression.

The following sections will discuss the components Coyne's (1976a) interpersonal theory of depression in more detail.

Enacted vs. perceived social support. Returning to a discussion of Coyne's (1976a) theory, social support can be defined as the "provision of psychological and material resources intended to benefit an individual's ability to cope with stress" (Cohen, 2004, p. 676). According to Coyne, low perceived social support leads to excessive reassurance seeking, which in turn leads to rejection by peers, which in turn leads to increased depressive symptoms.

Early research on social support focused on a superordinate construct, which was simply labelled social support. However, as this research evolved, theorists and researchers have found it useful to distinguish between two subordinate components: received (enacted) social support, and perceived social support, which includes both perceptions of availability and satisfaction with support (Finch, Okun, Pool, & Reuhlman, 1999). Meta-analytic data suggests that perceived social support is more strongly related to psychological distress than is received or enacted social support ($r = -.35$ and $r = -.17$ respectively; Finch et al., 1999). It has also been suggested that received social support could only improve outcomes if it modified perceived social support. This suggestion has been supported by anecdotal and meta-analytic evidence that perceived social support is more strongly and consistently related to mental health outcomes than is received social support (Barrera, 1986, 2000; Chu, Saucier, & Hafner, 2010; DiMatteo, 2004; Dunkel-Schetter & Bennett, 1990; Gülaçti, 2010; Lakey & Cronin, 2008; Lakey & Orehek, 2011; Sarason, Sarason, & Pierce, 1990; Smerglia, Miller, & Kort-Butler, 1999; Uchino, 2009; Uchino, Bowen, Carlisle, & Birmingham, 2012; Wills & Shinar, 2000; Xia et al., 2012).

Due to the contention that it may be possible to modify perceived social support by manipulating levels of enacted social support, some researchers have attempted to increase supportive behaviours in the environment. However, only a few studies have demonstrated that perceived social support can be modified by manipulating support levels in the environment

(e.g., Barrera, Glasgow, McKay, Boles, & Feil, 2002), while a number of others have not (Barrera & Prelow, 2000; Haber, Cohen, Lucas, & Baltes, 2007; Heller, Thompson, Trueba, Hogg, & Vlaschos-Webber, 1991). Results like these have led to an exploration of the relationship between enacted and perceived social support. A meta-analysis of 23 studies found an average correlation of $r = .35$ between the two social support variables, meaning that enacted social support only accounts for approximately 12% of the variance in perceived social support. Thus, enacted social support is not, the “primary constituent factor” of perceived social support, as was once assumed (Haber et al., 2007, p. 139; Xia et al., 2012). Additionally, it has been demonstrated that enacted social support does not account for perceived social support’s links to positive and negative affect (Lakey, Orehek, Hain, & VanVleet, 2010). Given that perceived social support has been demonstrated to be more intrinsically linked to mental health outcomes than is received social support, this dissertation focused exclusively on this aspect of social support.

Perceived social support and depression. Perceived social support is defined as the belief or perception “that [one is] cared for and loved, esteemed, and a member of a network of mutual obligations” (Cobb, 1976, p. 300). In Coyne’s (1976a) theory, low levels of perceived social support brought on by minor depressive symptoms are hypothesized to cause uncertainty about the self and supportive others. Since the introduction of Coyne’s (1976a) theory, many researchers have examined the role of perceived social support in depression. Researchers have focused on two main ways in which perceived social support affects depressive symptomatology: 1) in a direct manner, where lower levels of perceived social support would be directly predictive of higher levels of depression; 2) in an indirect manner, in which perceived social support would

“buffer” against the effects of negative stressors, thereby reducing the depressogenic effects of stress.

It is generally agreed upon that a lack of perceived social support negatively affects general well-being, psychological well-being, and is specifically related to the onset of depressive symptoms (Berkman et al., 2000; Cohen, 2004; Grav et al., 2011; Kendler, Myers, & Prescott, 2005; Kogstad, Mönness, Sörensen, 2013; Kwag, Martin, Russell, Franke, & Kohut, 2011; Lakey & Cronin, 2008; Lakey et al., 2010; Leifheit-Limson et al., 2010; Lincoln, Chatters, & Taylor, 2005; Mburia-Mwalili, Clements-Nolle, Lee, Shadley, & Yang, 2010; Oliver, Harman, Hoover, Hayes, & Pandhi, 1999; Russell & Curtona, 1991; Sarason et al., 1990; Uchino et al., 2012). As early as 1985, numerous studies had identified a link between social support and psychological health outcomes, with a positive correlation being found between positive mental health outcomes and social support (Cohen & Wills, 1985). Since then, many researchers have found support for the direct effect of perceived social support on depression (e.g., Bozo, Toksabai, & Kürüm, 2009; Day, Kane, & Roberts, 2000; Grav et al., 2011; Khatlib, Bhui, & Stansfeld, 2013; Meadows, 2011; Schroevers, Ranchor, & Sanderman, 2003; Zimmer & Chen, 2012). Studies have shown that greater levels of perceived social support are associated with lower levels of depressive symptoms using cross-sectional designs (e.g., Clara, Cox, Enns, Murray, & Torgrudc, 2003). However, studies of this nature cannot clarify whether social support is a consequence or antecedent (and plausible causal variable) of depression.

Longitudinal or prospective design studies are important in helping to determine the order of occurrence of variables. Longitudinal studies have found that low levels of perceived social support are predictive of increased levels of depressive symptoms (e.g., Bozo et al., 2009; Day et al., 2000; Eom et al., 2013; Kendler et al., 2005; Khatlib et al., 2013; Mburia-Mwalili et al.,

2010; Schroevers et al., 2003; Skipstein, Janson, Kjeldsen, Nilsen, Mathiesen, 2012; Stice, Rogan, & Randall, 2004; Woodward et al., 2013; Zimmer & Chen, 2012), and have also found that high levels of perceived social support serve to protect against the development of future depressive symptoms (e.g., Applebaum et al., 2014; Bozo et al., 2009; Day et al., 2000; Kendler et al., 2005; Lakey & Cronin, 2008; Lakey & Orehek, 2011; Moak & Agrawal, 2009; Petit, Roberts, Lewinsohn, Seeley, & Yaroslavsky, 2011; Puyat, 2013; Smith et al., 2013; Stice et al., 2004; Zimmer & Chen, 2012). Overall, the above findings demonstrate that while higher levels of perceived social support can protect individuals against the development of depressive symptoms, deficits in this factor can lead to higher levels of depressive symptoms. As a more explicit example, in a general population study conducted in Norway ($n = 40,659$), the prevalence of depression among those with low perceived social support was found to be 35% ($OR = 6.5$; Grav et al., 2011).

The buffering hypothesis of social support was proposed by Cohen and Wills in 1985. Essentially, this hypothesis puts forward the idea that perceived social support protects individuals from the depressogenic effects of stress, thereby “buffering” them from the negative effects of stress. Due to the temporal relationship between stress and depression (with stressors leading to depressive symptoms) suggested in this hypothesis, it is not feasible to test it using cross-sectional research designs. Therefore, most of the research investigating the buffering hypothesis has been done using longitudinal designs. Some studies have not found support for the buffering hypothesis using such designs (e.g., Burton, Stice, & Seeley, 2004; Stice et al., 2004; Wade & Kendler, 2000a), though it is important to note that many of these studies have had methodological concerns that limited researchers’ ability to find significant buffering results (e.g., no inclusion of an baseline rating of dysphoria; Lakey & Cronin, 2008). There have been

many other studies that have found support for the buffering hypothesis (e.g., Dormann, & Zapf, 1999; Moak & Agrawal, 2009; Schroevers et al., 2003; Shahar, Cohen, Grogan, Barile, & Henrich, 2009; Zuroff & Blatt, 2002), specifically finding that when levels of stress were high, higher levels of perceived social support protected individuals from developing depressive symptoms. These studies also found that when individuals had low levels of social support, and high levels of stress, their levels of depressive symptoms increased significantly. Although the stress buffering theory tends to dominate in the empirical research literature on social support, it has limitations that are important to point out (Lakey & Orehek, 2011; Thoits, 2011; Turner & Turner, 2013).

First, stress buffering is observed quite inconsistently, especially in comparison to the main effect relationship between perceived support and mental health, which seems to be found in nearly all studies examining social support in relation to mental health outcomes (Lakey & Cronin, 2008; Lakey & Orehek, 2011). Second, stress buffering theory suggests that perceptions of social support are dictated completely by specific supportive actions received from others (Hobfoll, 2009; Lakey & Cohen, 2000), and as indicated previously, the link between perceived and enacted social support is not actually as strong as implied by this theory (e.g., Barrera, 1986; Finch et al., 1999; Haber et al., 2007; Lakey & Orehek, 2011; Xia et al., 2012). More recently, Lakey and Orehek (2011), in their “Relational Regulation Theory” have proposed that perceptions of social support may be most influenced by daily, mundane interactions (e.g., someone asking “how are you?”, talking about daily life, etc.), as opposed to major instances of received social support or conversations about how to cope with stress. These “ordinary” interactions are suggested to serve as the basis for expectations about support, and may help to regulate individuals on a daily basis. From this perspective, it is important to pay attention to

such daily interactions, as they may help to increase understanding of the link between support and mental health (Lakey & Orehek, 2011; Lakey & Tanner, 2013; Uchino et al., 2012).

Overall, the above findings demonstrate that perceived social support affects depression in two distinct ways: by directly influencing depressive symptoms, and by buffering against the depressogenic effects of stress, or regulating individuals' affect on a daily basis.

Excessive reassurance seeking and depression. The third major component of Coyne's theory (see Figure 1) is excessive reassurance seeking (ERS), which has been defined by Joiner, Metalsky, Katz, and Beach (1999), as "the relatively stable tendency to excessively and persistently seek assurances from others that one is loveable and worthy, regardless of whether such assurance has already been provided" (p. 270).

According to researchers (Joiner, Alfano, & Metalsky, 1992; Joiner et al., 1999), ERS is the key element to Coyne's (1976a) theory, which they posit operates not only as Coyne proposed (i.e., leading to interpersonal rejection), but is also a *direct* risk factor for depression (Joiner et al., 1999). This section will focus on studies that examine the latter hypothesis, with Coyne's proposed link being discussed in a subsequent section.

Evidence has shown that those who are high in ERS are indeed at higher risk for depression, especially when they are involved in stressful and unsatisfying relationships, or exposed to stress in general. Several studies have found that ERS is positively correlated with depression (with individuals with depressive symptoms more likely to excessively seek reassurance; e.g., Burns, Brown, Plant, Sachs-Ericsson, & Joiner, 2006; Coyne, 1976b; Joiner et al., 1992; Joiner & Metalsky, 1995; Joiner et al., 1999; Knobloch, Knobloch-Fedders, & Durbin, 2011; Starr & Davila, 2008), and that it temporally precedes and is predictive of future depressive symptoms (e.g., Joiner et al., 1999; Joiner & Metalsky, 2001). Research has also

demonstrated that ERS is a risk factor for depression in people who have a significant other who suffers from depression (i.e. “contagious depression”; Joiner, 1994). In other words, if an individual has a significant other who suffers from depression, and they also engage in ERS, they are at an increased risk to developing depression themselves. This has been found to be true among college roommates (e.g., Joiner, 1994), romantic partners (e.g., Katz, Beach, & Joiner, 1999), and between parents and children (Abela, Zuroff, Ho, Adams, & Hankin, 2006). Studies have also suggested that those with high ERS and in unsatisfying relationships or have low perceived social support are also vulnerable to developing depression. This risk factor has been found in women in unsatisfying romantic relationships (e.g., Katz, Beach, & Joiner, 1998), and college roommates, both in unsatisfying relationships as well as those who perceive decreases in social support (e.g., Joiner & Metalsky, 2001 and Haefel, Volz, & Joiner, 2007 respectively). Lastly, research has provided evidence that ERS may be a risk factor for depression in combination with more general stress, such as students transitioning into college (Davila, 2001), and failing mid-term exams (Joiner & Metalsky, 2001). Overall, ERS has demonstrated to be closely related to depression, with a more recent meta-analysis finding a correlation of $r = .32$ across 39 different studies, indicating that higher levels of ERS were associated with more depressive symptoms (Starr & Davila, 2008).

In a theory similar to Coyne, called self-verification theory, Swann (1990) proposed that although depressed individuals do seek reassurance from others, they tend to seek self-verifying negative information, as opposed to support from others. As a result, any reassurance received by the depressed person will be viewed as insincere, given for reasons of either pity or guilt, which may be because, as proposed by Swann (1990; Swann, Griffin, Predmore, & Gaines, 1987; Swann, Pelham, & Krull, 1989), those with depressive symptoms are looking specifically for

information which is consistent with the negative views they hold of themselves. Swann called this pattern of communication “negative feedback seeking (NFS)”. Self-verification theory suggests that individuals have a desire to maintain consistency in their view of themselves. Thus, people tend to seek out (Cambron & Acitelli, 2010; Casbon, Burns, Bradbury, & Joiner, 2005; Swann & Read, 1981a; Swann, Wenzlaff, Krull, & Pelham, 1992; Swann, Wenzlaff, & Tafarodi, 1992; Timmons & Joiner, 2008), pay attention to (Casbon et al., 2005; Swann & Read, 1981a), remember (Casbon et al., 2005; Swann & Read 1981a, b; Timmons & Joiner, 2008), and even be more likely to believe (Cambron & Acitelli, 2010; Casbon et al., 2005; Swann et al., 1987; Timmons & Joiner, 2008) feedback from others that is consistent with their self-image. In the case of individuals with depressive symptoms, the feedback that they desire to maintain this consistency tends to be negative, even though negative feedback may be emotionally unpleasant (Cambron & Acitelli, 2010; Swann et al., 1987; Timmons & Joiner, 2008). A number of studies have demonstrated that individuals with depressive symptoms engage in negative feedback seeking and have a preference for negative feedback (e.g., Giesler, Josephs, & Swann, 1996; Giesler & Swann, 1999; Joiner 1995; Joiner, Katz, & Lew, 1997; Petit & Joiner, 2001; Swann, Wenzlaff, Krull, et al., 1992; Swann, Wenzlaff, & Tafarodi, 1992).

Although the goals of ERS and NFS seem to be at odds with each other, contemporary theories predict that depressed individuals actually engage in both types of behaviour (Cambron & Acitelli, 2010; Evraire & Dozois, 2011; Joiner, Alfano, & Metalsky, 1993; Joiner & Metalsky, 1995). The engagement in both of these seemingly opposed behaviours may occur because depressed individuals have a tendency to believe negative feedback but doubt reassurances. Consequently, individuals with depression may first seek out the comfort and solace of emotionally rewarding support (ERS), but then begin engaging in NFS when the reassurances are

doubted because of their incongruence with self-image (Cambron & Acitelli, 2010). It has also been suggested that these two feedback seeking behaviours operate in a cycle with one another. For example, an individual may engage in NFS to confirm their self-concept, and to gain a sense of control. At the same time however, the individual may fear instability, rejection, and abandonment, and therefore NFS may leave the individual feeling insecure, and in need of reassurance. This means that once the individual reaches a certain threshold of negative feedback, they may then engage in ERS in the hopes that it will increase positive affect and alleviate their insecurity. However, the individual will then doubt the sincerity of positive feedback because of the incongruence with their self-concept, and as a result re-engage in NFS (Evraire & Dozois, 2011).

Overall, the above findings suggest that both ERS and NFS are significantly related to depression and its onset and maintenance.

Perceived social support and excessive reassurance seeking. An important component of Coyne's (1976a) interpersonal theory of depression is the relationship between perceived social support and excessive reassurance seeking (ERS). Several studies have identified ERS as a moderator between low levels of perceived social support and depressive symptoms. Those who have low perceived social support and who engage in ERS have higher levels of depressive symptoms compared to those who have low perceived social support but do not engage in ERS (e.g., Joiner, 1999; Joiner et al., 1993; Joiner & Metalsky, 1995; Katz & Beach, 1997).

In addition, results from research have demonstrated that both ERS and low perceived social support have to be present for an effect of ERS on depressive symptoms to occur (e.g., Haefffel et al., 2007). One study (Haefffel et al., 2007) set out to examine Coyne's (1976a) hypothesis that excessive reassurance seeking in combination with lowered levels of perceived

social support would lead to increases in future depressive symptoms. Using a five-week longitudinal design, this study found that ERS only led to increases in depressive symptomatology in the presence of a perceived decrease in social support or a low level of perceived social support. This finding is important, as it demonstrates that each piece of Coyne's (1976a) model is important to the development of depressive symptoms, and combine to become more important as a whole. One more recent study also demonstrated that for individuals with major depressive disorder, the most common focus of reassurance seeking involved ensuring that social support was present (e.g., "Do you love me?"), with the most common triggers being doubts or insecurities about relationships and doubts about self-competence. Additionally, participants with major depression in this study indicated that their reasons for engaging in reassurance seeking were an attempt to increase self-esteem, increase received affection, decrease their anxiety about relationship issues, and prevent social harm (Parrish & Radomsky, 2010). A study by Evraire and Dozois (2014) examining the relationship between attachment anxiety and ERS found that anxious attachment and fears of abandonment predicted engaging in ERS over and above initial depressive symptom level. Interestingly, despite recognizing in their study the relationship between attachment anxiety and perceived social support, they did not measure this variable. Given perceived social support's relationship with anxious attachment, it would likely also have predicted engagement in ERS.

Related to Swann's (1990) self-verification theory, one variable that is conceptually related to social support is self-verification; in that social supportive others are the source of this verification. Nevertheless, this variable has received very limited attention in the social support and mental health outcomes literature. Although researchers have encouraged the examination of self-verification in the context of larger social support networks, the traditional focus has been on

close relationships at the dyadic level (Baumgardner, 1990; Beach, Fincham, Katz, & Bradbury, 1996; Swann & Predmore, 1985). A more recent study (Wright, King, & Rosenberg, 2014), examining the relationship between perceived social support and self-verification found that higher levels of perceived social support were related to increased perceptions of being self-verified. Additionally, findings indicated that as levels of self-verification increased, it predicted decreases in perceptions of loneliness, depression, and stress.

Overall, the above research demonstrates that perceived social support is intrinsically connected to ERS, and that low perceived social support may actually predict engagement in ERS.

Excessive reassurance seeking and interpersonal rejection. The fourth important component in Coyne's (1976a) interpersonal model of depression (see Figure 1) is that excessive reassurance seeking (ERS) is related to interpersonal rejection. Beginning with Joiner et al. (1992, 1993), many studies have looked specifically at excessive reassurance seeking (ERS) and social rejection. There is also a considerable amount of evidence in support of the postulation that depressed individuals, who excessively seek reassurance, elicit rejection from others (e.g., Coyne, 1976b; Joiner et al., 1992; Joiner & Barnett, 1994; Joiner & Metalsky, 1995). Coyne's (1976a) theory predicts that this rejection should be mediated by an increase in negative affect caused in the support provider (called "depression contagion"). Although some evidence has been found for depressed people inducing negative moods in others (e.g., Coyne, 1976b; Joiner, 1994; Joiner et al., 1992), research has not supported the idea that this induced negative mood mediates the relationship between depressive symptoms and interpersonal rejection (e.g., Benazon, 2000; Gurtman, 1986; Joiner et al., 1992, 1993). Despite the fact that findings have not supported induced negative mood mediating the relationship between depressive symptoms and

interpersonal rejection, there have been a large number of studies that support a more direct relationship between ERS and interpersonal rejection (e.g., Joiner et al., 1992; Joiner et al., 1999; Joiner & Metalsky, 2001). In other words, depressed individuals who engage in ERS are more likely to be rejected socially than those who do not (Benazon, 2000; Joiner et al., 1992, 1993; Joiner & Metalsky, 1995; Katz & Beach, 1997). One more recent study (Lemay & Cannon, 2012) experimentally manipulated social supporters' perceptions of a target friend's ERS behaviours, and replicated the finding that ERS in the presence of depressive symptoms increases the likelihood of interpersonal rejection. In a meta-analytic review of the literature, Starr and Davila (2008) demonstrated that ERS is correlated at $r = .14$ with interpersonal rejection, with higher levels of ERS predicting more rejection.

Although ERS has been shown to be related to interpersonal rejection, it is clear that there are other variables associated with it, and other authors have suggested other reasons for the rejection of individuals with depression. In a 1994 article, Segrin and Abramson proposed that people with depression have deficits in their social skills (e.g., decreased eye contact, and excessive self-disclosure) that lead to interpersonal rejection. They suggest that interpersonal problems arise from a combination of the depressed person's actions as well as their partner's reactions. This "communication theory" (Segrin & Abramson, 1994) was proposed based on a wealth of information from studies suggesting that people with depression are seen by themselves and others as less socially competent (e.g., Dykman, Horowitz, Abramson, & Usher, 1991), have deficits in their paralinguistic behaviours (e.g., speaking with low volume; Darby, Simmons, & Berger, 1984), make more negative statements (e.g., Gotlib & Robinson, 1982) and self-disclose more negative issues (e.g., Kuiper & McCabe, 1985), engage in less eye contact (e.g., Dow & Craighead, 1987), are less responsive to others (e.g., Wilfong, Saylor, & Elksnin,

1991), and are seen by others to be less polite (e.g., Dillard & Harkness, 1992). Evidence for this theory is mixed however, with many studies finding differences in social skill only at the self-report level (Dow & Craighead, 1987; Gotlib & Meltzer, 1987; Segrin, 1990), in which case those with depressive symptoms would be likely to negatively evaluate themselves, with others finding no rejection effect due to social skills deficits in depressed individuals (see Segrin & Dillard, 1992 for a review). More recently, studies have indicated that individuals with depression exhibit fewer interpersonally appropriate behaviours, and as a consequence may receive less social reinforcement from others (Hopko & Mullane, 2008; Lemay & Cannon, 2012; Trew, 2011).

Expanding on Segrin & Abramson's (1994) communication theory, Sacco and Nicholson (1999) proposed that the interpersonal processes in depression are best explained by a "social-cognitive model". This model suggests that the responses to people with depression arise not only from the depressed person's social skills deficits (Segrin & Abramson, 1994), which result in a negative schema about the person being helped by others, but also the negative perceptual bias typical amongst those with depression (Sacco & Beck, 1995). Sacco and Nicholson (1999) use this theory to explain why others would react negatively to those who engage in ERS, suggesting that the negative schema held by others about depressed people develops over time as their reassurance seeking behaviours become excessive (Bargh, Lombardi, & Higgins, 1988). Then, once the negative schema has developed, any behaviours the depressed person displays may be interpreted negatively, even if symptoms have remitted (Sacco, Dumont, & Dow, 1993), which could then lead to rejection. This theory was also proposed to explain why even strangers would reject or react negatively towards depressed individuals (Sacco & Nicholson, 1999), and suggests that simply knowing that someone is depressed may influence one's reaction to the

depressed individual's behaviours (Cane & Gotlib, 1985). Also, because those who are predisposed to depression or who are depressed have a negative perceptual bias, they are likely to be extremely sensitive to others' negative reactions towards them, which may lead to the worsening of present symptoms (Sacco & Beck, 1995; Sacco & Nicholson, 1999). Furthermore, there is some evidence suggesting that the heightened insecurity in depressed individuals creates some pressure in support providers to help regulate their depressed peers' feelings of security by suppressing potentially upsetting negative emotions or behaviours, as well as providing false reassurance and support (Lemay & Cannon, 2012; Segrin & Abramson, 1994). Thus, providers may continue to provide comfort and support, while harbouring private negative sentiments. This pressure to comfort depressed individuals is often unpleasant for those who experience it, and appears to erode relationship satisfaction, which may subsequently lead to interpersonal rejection of the depressed individuals (Lemay & Cannon, 2012; Lemay & Clark, 2008; Lemay & Dudley, 2011).

Interpersonal rejection and increased depressive symptoms. The last piece of Coyne's (1976a) theory (see Figure 1) focuses on the connection between interpersonal rejection and an increase in depressive symptoms. Research suggests that interpersonal rejection is both a consequence and predictor of depressive symptoms (e.g., Joiner & Metalsky, 2001; Joiner & Timmons, 2010). Interpersonal rejection has been found to be predictive of future depressive symptoms in a number of studies (e.g., Ayduk, Downey, & Kim, 2001; Braet, Van Vlierberghe, Vandevivere, Theuwis, & Bosmas, 2013; Nolan, Flynn, & Garber, 2003; Platt, Kadosh, & Lau, 2013).

What does this all mean? Overall, the above research on interpersonal theories suggests that Coyne's (1976a) theory was not comprehensive enough in scope, and that the relationships

between perceived social support, ERS, interpersonal rejection, and depressive symptomatology are much more complicated than the Coyne's (1976a) interpersonal theory would suggest. However, it is clear that both perceived social support and ERS are important variables in predicting the course of depression, and thus, interventions that target these variables are important. This dissertation focuses on the perceived social support component of Coyne's theory. Perceived social support is clearly a direct and indirect risk factor for depression, and perhaps an intervention targeting perceived social support may be an effective way of preventing and treating depression as well as preventing relapse.

Psychotherapeutic Intervention for Depression, Limitations, and Alternative Treatment Approaches

Fortunately, there are a variety of established empirically supported (i.e., both efficacious and effective) treatments for depression. Cognitive Behavioral Therapy (CBT) and Interpersonal Psychotherapy (IPT) have the most substantial research support, and are recommended by several international bodies (e.g., APA, 2010; Canadian Psychiatric Association [CPA-APC], 2001; National Institute for Health and Clinical Excellence [NICE], 2009) as first-line psychotherapies for moderate to severe depression (with or without combined pharmacological treatment) meaning that they are "recommended with substantial clinical confidence" (APA, 2010, p. 15). However, despite the existence of such treatments, the reach of these therapies is still limited by lower than desired response rates and a lack of access to treatment.

Although cognitive, behavioral, and interpersonal psychotherapeutic approaches have demonstrated efficacy in reducing depressive symptoms and compare favourably to pharmacological treatment approaches (APA, 2010), no technique has been found to be effective for every individual experiencing depression. For example, for CBT and IPT, response rates have

been found to be between 38.7 and 55% (e.g., Driessen et al., 2013; Luty et al., 2007), while remission rates are lower at ~25% (e.g., Driessen et al., 2013). This means that between 45-75% of individuals who complete treatment do not experience a remission or reduction in symptoms. Some reasons for these low response and remission rates are that time-limited psychotherapy may not be sufficient for many individuals (Driessen et al., 2013), that some individuals may respond preferentially to one type of psychotherapy over another (Markowitz & Milrod, 2015), and that some individuals may have treatment resistant depression or other co-morbid disorders that limit the effectiveness of treatment (Solomonov & Barber, 2016). However, it must be acknowledged that in many cases it is unknown why the majority of individuals do not respond to treatment (Solomonov & Barber, 2016). There is some evidence that treatments that target specific vulnerability factors (e.g., developmental and interpersonal factors) of depression may be especially helpful and may result in improved response rates (e.g., Hayes, Castonguay, & Goldfried, 1996).

Despite the existence of multiple psychotherapeutic interventions for depression, access to such treatments remains low. It is estimated that in the United States and Canada, only between 30-40% of individuals who are reported to have depression actually receive treatment, which would be termed “minimally adequate treatment” (Corrigan, 2004; Kessler et al., 2001; Layous et al., 2011; Mood Disorders Society of Canada, 2010; National Institute of Mental Health, 2004; Reiger et al., 1993). Although there are a number of hypothesized reasons for the disparity between the number of individuals with significant depressive symptomatology and the number actually receiving treatment, the two most cited reasons in the literature are: stigma (e.g., Corrigan, 2004; Layous et al., 2011), and the high cost of traditional treatments (i.e., the lack of equal access to treatment; e.g., Layous et al., 2011). These estimates are alarming and suggest

that between 60-70% of individuals with reported depression either do not receive adequate treatment, or receive no treatment whatsoever, in the United States and Canada. More alarming yet, is the fact that these figures do not include *unreported* cases of depression, which are hypothesized to go unreported due to stigma, lack of access to appropriate health care, and other reasons, such as social and/or geographical isolation, lack of motivation or energy associated with depression, and lack the necessary funds to pay for appropriate treatment (Layous et al., 2011). Comparatively, in the developing world, it is estimated that less than 10% of individuals affected by depression receive appropriate care for reasons such as stigma, poverty, lack of mental health care providers, and lack of government funding (WHO, 2012).

It has been demonstrated that individuals may tend to avoid seeking out mental health care to avoid being labelled as “mentally ill”, a label that can lead to decreased opportunities and discrimination by others, as well as decreased self-esteem (Coote & MacLeod, 2012; Corrigan, 2004; Corrigan, Powell, & Michaels, 2013; Parcesepe & Cabassa, 2013; Pincus, Pechura, Elinson, & Petit, 2001; Schomerus & Angermeyer, 2008). For example, several studies have demonstrated that public prejudice and stigma about mental illnesses have a profoundly negative effect on obtaining and maintaining employment (e.g., Baldwin & Marcus, 2011; Bordieri & Drehmer, 1986; Corbière et al., 2011; Corrigan, Larson, Watson, Boyle, & Barr, 2006; Corrigan & Shapiro, 2010; Link, 1987; Parcesepe & Cabassa, 2013; Wahl, 1999) as well as obtaining and keeping safe housing arrangements (e.g., Corrigan et al., 2006; Corrigan & Shapiro, 2010; Hogan, 1985; Parcesepe & Cabassa, 2013; Wahl, 1999). Additionally, research suggests that individuals who are labelled as mentally ill actually receive *less* medical attention (e.g., Desai, Rosenheck, Druss, & Perlin, 2002; Druss & Rosenheck, 1997) and are likely to receive less insurance benefits than those without mental illnesses (e.g., Druss, Allen, & Bruce, 1998; Druss

& Rosenheck, 1998). Individuals who are labelled as mentally ill might also internalize some of the prejudiced and stereotyped conceptions that accompany the label, and thus have decreased self-esteem and self-efficacy (e.g., Bathje & Pryor, 2011; Corrigan, 1998, 2004; Corrigan et al., 2013; Holmes & River 1998; Link, Struening, Neese-Todd, Asmussen, & Phlean, 2001; Mojtabai, 2010), and a feeling of shame about the self (e.g., Bathje & Pryor, 2011; Corrigan et al., 2013; Corrigan & Watson, 2002; Link, Cullen, Struening, Shrout, & Dohrenwend, 1989; Sirey et al., 2001). These results of internalized stigma are believed to reduce willingness and desire to seek treatment, as individuals may view themselves as irreparable, or may be too ashamed to seek treatment (Bathje & Pryor, 2011; Corrigan, 2004; Mojtabai, 2010; Szeto, Luong, & Dobson, 2013).

Traditional psychotherapeutic interventions, though they have demonstrated efficacy, are also typically quite costly. The costs for treating depression in a traditional psychotherapy setting are estimated to range from \$200 for three sessions to well over \$1200 for the 10 session course of treatment recommended by the American Psychological Association for optimal care of moderate to severe depression (Watkins et al., 2009). Moreover, most individuals in actual practice receive much longer courses of treatment (e.g., 21.7 sessions on average; Hunsley, Elliott, & Therrien, 2013). Therefore, those individuals who are at relatively higher risk of developing depression (i.e., those with lower education and/or under financial strain), may be the least likely to be able to access appropriate treatment (Coote & MacLeod, 2012; Pincus et al., 2001; Wang, Schmitz, & Dewa, 2010).

Overall it is clear that although the traditional psychotherapeutic and pharmacological treatments are effective in treating many individuals with depression, they are not universally effective, nor are they accessed by or readily available to all who could benefit from them.

Therefore, one option for addressing this limitation would be the development of alternative or supplementary treatment approaches. Some have suggested that the use of “positive activity interventions” (PAIs) should be used to help depressed individuals experience positive thoughts, affect, and behaviors, and therein help them to move beyond a mere remission of symptoms, and on towards true mental health (e.g., Layous et al., 2011). Typically, these PAIs are self-administered and focus on increasing positive emotion and attention paid to positive aspects of daily life, which may serve to prevent relapse brought about by potential triggers, such as stress. Being self-administered also confers the benefits of cost-effectiveness and convenient access and delivery, especially if offered in an online environment, which may help to decrease the gap between individuals with depressive symptoms who receive treatment and those who do not (Layous et al., 2011; Layous, Nelson, & Lyubomirsky, 2013; Schuller & Parks, 2012). Additionally, self-administered treatments can also help to increase internal locus of control, allowing individuals to attribute any change in symptoms to their own efforts (Benassi, Sweeny, Dufour, 1988; Lovell et al., 2008; Layous et al., 2011; Mitchell, Vella-Brodrick, Klein, 2010; Sheldon, Elliot, Kim, & Kasser, 2001).

Interventions that increase positive emotions might be especially valuable to those suffering from depressive symptoms, as positive affect has been demonstrated to buffer against relapse (Fava & Ruini, 2003), and increase broad-minded coping skills (Fredrickson & Joiner, 2002), with even momentary positive feelings being found to broaden both attention and thinking (Fredrickson, 2001). It has also been suggested that even the experience of brief positive states can trigger an upward spiral towards greater psychological well-being, resiliency, and thriving (Fredrickson & Joiner, 2002). In two recent meta-analyses, PAIs have been shown to be effective for both clinically depressed and non-depressed individuals in increasing well-being, and

decreasing the severity of depressive symptoms ($r = .34$ and $r = .23$ respectively; Boiler et al., 2013; $r = .29$ and $r = .31$ respectively; Sin & Lyubomirsky, 2009).

Other self-administered treatments, such as recalling positive events from the day, or engaging in an exercise regime, have also been shown to be highly efficacious in the treatment of mild to moderate depression (Coote & MacLeod, 2012; Morgan & Jorm, 2008). These results are quite impressive given that many of these interventions are brief, self-administered positive activities as opposed to traditional psychotherapy. Another advantage of PAIs are that they have a relatively low barrier for engagement (especially for those lacking motivation, energy, or enthusiasm) compared to traditional psychotherapy, where individuals have to locate a therapist, arrange an appointment, and then get to the therapist's office (Layous et al., 2011). It has also been suggested that these interventions may be more tolerable and enjoyable for participants as compared to other interventions, and may therefore reduce dropout rates (Geraghty, Wood, & Hyland, 2010a, 2010b; Layous et al., 2013; Muñoz, 2010; Schuller & Parks, 2012). Many of these self-administered strategies can be delivered online, which increases the potential for wide distribution. Research has demonstrated that online interventions, when based on empirically supported treatments, are effective in increasing well-being and in decreasing depressive symptoms (Boiler et al., 2013; Gander, Proyer, Ruch, & Wyss, 2013; Meyer et al., 2009; Mitchell, Stanimirovic, Klein, & Vella-Brodrick, 2009; Muñoz, 2010; Schuller & Parks, 2012; Spek et al., 2007). Additionally, the effects of PAIs can occur quite quickly, for example, in a 2005 study by Seligman, Steen, Park, and Peterson, 341 participants completed online PAIs (randomly assigned to one of five different interventions) for one week, and all treatment groups showed significant decreases in depressive symptoms after only one week of participation.

Although self-administered treatments have a number of advantages (i.e., cost savings, convenient delivery), they are not without their drawbacks. For example, they may not be ideal for individuals suffering from severe depression, or for individuals with a bias against “self-help” programs (Layous et al., 2011; Sin & Lyubomirsky, 2009).

Despite these disadvantages however, it has been suggested that self-help or self-administered online treatments strike a convincing balance between effectiveness and the potential for wide distribution and delivery (Layous et al., 2011). However, it is important that these programs are based on sound science, and thus it is important to know what these interventions should focus on, and whether or not they are effective. The overall purpose of my dissertation was to develop and assess an expressive writing PAI. However, unlike other expressive writing interventions, mine was designed to target a specific vulnerability factor for depression and specific component of Coyne’s interpersonal theory of depression: perceived social support. It has been clearly established in the literature that low perceived social support is related to increased depressive symptomatology (e.g., Cairney, Boyle, Offord, & Racine, 2003; Lakey et al., 1999; Turner & Marino, 1994; Wade & Kendler, 2000b). Perceived social support is thus a worthy potential target of interventions designed to address depressive vulnerabilities rather than depressive symptoms more broadly.

Social Support as a Specific Target for Psychosocial Interventions

Some existing traditional psychotherapeutic treatments for depression have been found to increase social support over the course of treatment, without specifically targeting this vulnerability. For example, although CBT (Beck, Rush, Shaw, & Emery, 1979; Dobson & Dobson, 2009) does not directly target perceived social support, it does target and attempt to change cognitive distortions (e.g., overgeneralization), one of which may be a negative distortion

of one's social support (Dobson & Dobson, 2009). Research has demonstrated that perceived social support does increase as a result of CBT treating depressive symptoms (e.g., Berkman et al., 2003; Martin, Reece, Lauder, McClelland, 2011; Stice, Rohde, Gau, & Ochner, 2011). Additionally, there are a number of interventions that are designed specifically to modify social support. Studies in this area have established that it is possible to increase perceptions of social support with more intensive interventions (e.g., Barrera et al., 2002; Brand, Lakey, & Berman, 1995; Hogan, Linden, Najarian, 2002), and that these interventions can also improve mood, and decrease depressive symptoms. However, many of the interventions that have been found to be effective in improving mood and decreasing depressive symptoms did not simply target perceived social support, but instead focused specifically on mood and depressive symptoms as goals for change in treatment (Hogan et al., 2002).

Interventions targeting social support, however, do exist. For example, computer-mediated or Internet-based interventions, psychoeducation, support groups, and more traditional psychotherapeutic interventions. A large review of the efficacy of social support interventions was conducted by Hogan et al. (2002). They suggested that as of 2002, there was no consensus on what the most effective social support intervention was, and that it still remained unclear whether or not social support interventions were actually effective in their stated goal of improving support, particularly perceptions of social support in participants (Hogan et al., 2002; Lakey & Lutz, 1996). This review focused on the efficacy of social support interventions and examined 100 studies from 1970-2000. The interventions were classified as either group or individual approaches, were focused on either providing new support, or producing changes in existing supports, and were focused on support from family and friends, from "peers" (i.e., those with similar difficulties), or from professionals. Thirty-nine of the 100 studies reviewed reported

that the supportive treatment was superior to no treatment or standard care controls, 12 reported that support interventions were superior or equivalent to alternative (and successful treatments, e.g., CBT), 22 studies suggested only partial benefits, 17 reported no benefit, and two studies suggested an iatrogenic effect of treatment. Although these results may appear promising at first, the benefits in each study were quite variable, ranging from fewer cigarettes smoked per day at the end of treatment, to significant reductions in depressive symptoms.

Although several researchers have pointed out the need for interventions that can increase perceptions of social support, and some interventions have been designed with this purpose in mind, a number of intervention and methodological concerns have limited the conclusions that can be made from this literature. First, many so-called social support interventions involve more traditional psychotherapeutic approaches with slight modifications (e.g., having a friend or family member come to sessions), and were not strictly focused on social support per se. They therefore carry the same potential negative factors as any other traditional psychotherapeutic approach such as high cost and limited access. Other potential interventions include psychoeducational groups and support groups. More recently, however, there has been an increased focus on computer-mediated or Internet-based interventions. It has been suggested that these types of interventions could change *perceptions* of social support (Barrera et al., 2002; Davison, Pennebaker, & Dickerson, 2000). A number of studies using online social support interventions, including online support groups, have demonstrated that perceptions of social support can be increased using this delivery method (e.g., Barrera et al., 2002; Hampton, Goulet, Rainie, & Purcell, 2011; Indian & Gieve, 2014; Mikal, Rice, Abeyta, & DeVilbiss, 2013; Oh, Ozkaya, & LaRose, 2014; Park, Kee, & Valenzuela, 2009; Plantin & Daneback, 2009; Rainie, 2005; Venkatesh, Morris, Davis, & Davis, 2003).

Second, even though all of the interventions had a goal of increasing social support, most studies did not actually *measure* this variable, instead only assuming that social support had increased, and that this increase in social support conferred the other benefits of the interventions. Sometimes researchers have assumed social support had changed based on change in other variables, such as depressive symptomatology (Barrera et al., 2002; Barrera & Prelow, 2000; Hogan et al., 2002). This is a major limitation in the literature, and limits both theory and application in social support research. In addition, when social support has been measured, it was most often not done using empirically supported and validated measures, instead being measured using “homemade” instruments which have had very superficial or no testing on their psychometrics. Researchers often also failed to identify which aspect of social support was targeted by their intervention (e.g., perceived social support or enacted social support). This is an important distinction as perceived and enacted social support are not strongly correlated (e.g., Haber et al., 2007; Lakey & Orehek, 2011), and perceived social support is much more connected to mental health outcomes (e.g., Lakey et al., 2009; Leifheit-Limson et al., 2010; Mburia-Mwalili et al., 2010; Uchino et al., 2012).

Another important limitation is that many of the studies had samples sizes that are considered to be very small (i.e., $n < 15$), and many did not randomly assign participants to treatment groups. Hogan and colleagues (2002), suggest that since perceived social support seems to be a key element in mental health outcomes, interventions that help individuals to more accurately interpret available support, or attend to and recognize it, may be essential.

Overall, the above research demonstrates that many existing social support interventions based on traditional psychotherapeutic approaches or support groups do not necessarily target social support per se, and many researchers studying the effects of these interventions do not

measure social support sufficiently, if at all. Thus, it remains unclear whether or not these interventions are actually effective in changing individuals' perceptions of social support. Although more recent research examining online social support interventions has shown promise, these novel interventions still require further study. My dissertation aims to address these limitations by specifically targeting social support, rather than related variables, utilizing random assignment to experimental and control intervention groups, and measuring perceived social support directly.

Using Expressive Writing to Promote Therapeutic Change

One potentially powerful intervention for modifying perceived social support is expressive writing. The Pennebaker (expressive) writing paradigm was developed by James Pennebaker and his colleagues in the mid-1980s. The first study to explore the impact of expressive writing examined its effects on health in a sample of college students. Visits to a physician were used as a measure of health, and these visits were measured for three months prior to and post intervention. Participants were randomly assigned to an expressive writing group or a neutral writing control group. Those in the expressive writing group were asked to write "about [their] deepest thoughts and feelings about the most traumatic experience of [their] entire life" (Pennebaker & Seagal, 1999, p. 1244), while those in the neutral writing group were asked to write about a different trivial topic each day (e.g., a description of their living room). Participants in both groups were asked to write for 15 minutes per day over four consecutive days. All writing took place in a laboratory setting, participants' writings were anonymous, and no feedback was given. Results indicated that students who were assigned to the expressive writing group significantly reduced the number of visits to a physician compared to the neutral writing control group (Pennebaker & Beall, 1986).

Since that initial study, there have been a substantial number of studies that have examined the effects of expressive writing in different populations. Though typically studies have involved having participants write for 10 to 15 minutes per occasion over three or four days, there have been studies that have involved writing for as few as five minutes per day, with even a single day of writing (Smyth & Pennebaker, 2008). An early assumption made in this literature was that writing once per day over several days would produce better results as it would allow participants time to process their writing between each session. Despite the fact that this assumption was long held by researchers in this area, it has failed to be supported experimentally (Smyth & Pennebaker, 2008), and some studies have even demonstrated positive effects from a single writing session, or several writing periods in one day (e.g., Greenberg, Stone, & Wortman, 1996).

What are the effects of expressive writing? Many of the experimental group participants in studies examining the effects of expressive writing have reported short term increases in negative mood, distress, and physical symptoms, as well as decreases in positive mood following writing about emotional topics (Baikie & Wilhelm, 2005). Although there may be a short term increase in distress, many participants also report finding expressive writing to be valuable and meaningful (Pennebaker, 1997a, 1997b), and multiple studies have demonstrated that expressive writing provides both physical and emotional health benefits (Frattaroli, 2006; Smyth, 1998).

Early research on the expressive writing paradigm used healthy undergraduate samples, and examined its effects in this population, with numerous studies finding improved physical and psychological health after expressive writing (Smyth, 1998). Despite the apparent potency of expressive writing to induce positive changes in both physical and psychological functioning, the

tendency to focus on healthy college samples was a major weakness in the literature. However, the expressive writing paradigm has also been studied in more distressed samples (e.g., HIV positive patients, Petrie, Fontanilla, Thomas, Booth, & Pennebaker, 2004; psychiatric prison inmates, Richards, Beal, Seagal, & Pennebaker, 2000; unemployed professionals, Spera, Buhrfeind, & Pennebaker, 1994; and adolescents with asthma, Warner et al., 2006), with the health benefits to participants being comparable to those obtained in the college samples. As far as physical health benefits are concerned, expressive writing has been found to decrease illness-related visits to physicians (e.g., Cameron & Nicholls, 1998; King & Miner, 2000; Pennebaker & Baell, 1986; Pennebaker & Francis, 1996; Richards et al., 2000; Stanton et al., 2002; Willmott, Harris, Gellaitry, Cooper, & Horne, 2011), reduce the number of self-reported illnesses (e.g., Baikie, Geerligs, & Wilhelm, 2012; Burton & King, 2004, 2009; O'Connor et al., 2011; Poon & Danoff-Burg, 2011; Sloan & Marx, 2004), improve immune functioning (e.g., Pennebaker, Kiecolt-Glaser, & Glaser, 1988; Petrie, Booth, Pennebaker, Davison, & Thomas, 1995; Petrie et al., 2004), improve lung function in individuals with asthma (e.g., Smyth, Stone, Hurewitz, & Kaell, 1999; Warner et al., 2006), decrease blood pressure (e.g., McGuire, Greenberg, & Gervitz, 2005; Willmott et al., 2011), decrease pain intensity in women with chronic pelvic pain (e.g., Norman, Lumley, Dooley, & Diamond, 2004), improve quality and length of sleep (e.g., Argio & Smyth, 2012; Mosher & Danoff-Burg, 2006; Poon & Danoff-Burg, 2011), and decrease the severity of irritable bowel syndrome symptoms (e.g., Halpert, Rybin, & Doros, 2010). Even though the majority of these effects were seen in healthy college samples, they were also observed in samples of HIV positive patients (e.g., Petrie et al., 2004), individuals who have experienced myocardial infarction (e.g., Willmott et al., 2011), individuals with mood disorders (e.g., Baikie et al., 2012), psychiatric prison inmates (e.g., Richards et al., 2000), breast cancer

patients (e.g., Stanton et al., 2002), and in other physical illnesses (e.g., Halpert et al., 2010; Norman et al., 2004; Smyth et al., 1999; Warner et al., 2006).

Expressive writing has also been shown to be effective in improving emotional and psychological health. For example, it has been found to increase positive affect (e.g., Burton & King, 2004, 2009; Kirk, Schutte, & Hine, 2011; Lewandowski, 2009; North, Pai, Hixon, & Holahan, 2011; Poon & Danoff-Burg, 2011; Schutte, Searle, Meade, & Dark, 2012), decrease negative affect (e.g., Burton & King, 2009; Mosher & Danoff-Burg, 2006; North et al., 2011; Páez, Velasco, & González, 1999; Pennebaker et al., 1988), increase psychological well-being (e.g., King, 2001; Park & Blumberg, 2002; Poon & Danoff-Burg, 2011), reduce brooding (i.e., negative self-focus; e.g., Gortner, Rude, & Pennebaker, 2006), decrease intrusive and avoidant thoughts (e.g., Boals, 2012; Hirai, Skidmore, Clum, & Dolma, 2012; Klein & Boals, 2001; Maestas & Rude, 2012; Páez et al., 1999; Park & Blumberg, 2002), improve implicit self-esteem (e.g., O'Connor et al., 2011), as well as decrease symptoms of depression (e.g., Ahmadi, Abdollahi, Ramezani, & Heshmati, 2010; Baikie et al., 2012; Baum & Rude, 2013; East, Startup, Roberts, & Schmidt, 2010; Frattaroli, Thomas, & Lyubomirsky, 2011; Gortner et al., 2006; Graf, Gaudiano, & Geller, 2008; Koopman et al., 2005; Krpan et al., 2013; Lepore, 1997; Shoutrop, Lange, Hanewald, Davidovich, & Salomon, 2002; Sloan, Feinstein, & Marx, 2009; Sloan & Marx, 2004; Sloan, Marx, Epstein, & Dobbs, 2008; Sloan, Marx, Epstein, & Lexington, 2007), anxiety (e.g., Baikie et al., 2012; Graf et al., 2008; Shoutrop et al., 2002), and posttraumatic stress (e.g., Hirai et al., 2012; Hoyt & Yeater, 2011; Sloan & Marx, 2004; Sloan et al., 2007).

Many of these studies found psychological benefits in relatively healthy college samples, yet these effects were also observed in samples of individuals with either current or previously diagnosed major depression (e.g., Ahmadi et al., 2010; Baikie et al., 2012; Gortner et al., 2006,

Krpan et al., 2013), intimate partner violence survivors (e.g., Koopman et al., 2005), individuals with a history of trauma (e.g., Hirai et al., 2012; Schoutrop et al., 2002; Sloan & Marx, 2004), outpatient psychotherapy clients (e.g., Graf et al., 2008), and individuals who recently experienced a relationship break-up (e.g., Lewandowski, 2009).

In addition to its effectiveness in improving physical and psychological health, expressive writing has also been found to increase GPA in students asked to write about their experience of entering college (e.g., Cameron & Nicholls, 1998; Klein & Boals, 2001; Pennebaker, Colder, & Sharp, 1990), increase scores on graduate entrance exams such as the LSAT and MCAT (e.g., Frattaroli et al., 2011), reduce body image issues in non-clinical samples (e.g., Argio & Smyth, 2012; East et al., 2010), help recently unemployed professionals gain reemployment faster (e.g., Spera, Buhrfeind, & Pennebaker, 1994), increase working memory capacity (e.g., Ahmadi et al., 2010; Klein & Boals, 2001), decrease absenteeism from work (e.g., Francis & Pennebaker, 1992), increase sporting performance in tennis players (e.g., Scott et al., 2003), improve autobiographical memory specificity (e.g., Maestas & Rude, 2012), decrease infertility-related stress in infertile couples undergoing assisted reproductive technology treatment (e.g., Matthiesen et al., 2012), reduce sleep onset latency in poor sleepers (e.g., Harvey & Farrell, 2003), reduce self-reported arousal before sleep in individuals with primary insomnia (e.g., Mooney, Espie, & Broomfield, 2009), and increase emotional intelligence and self-efficacy, as well as decrease workplace incivility in employees (e.g., Kirk et al., 2011).

Notwithstanding its demonstrated effectiveness in bringing about improvements in both physical and psychological health in a variety of different populations, expressive writing has not been found to be universally effective. Many studies have found that it is no more effective than a neutral writing control, even in college samples (e.g., Dickerson, Kemeny, Aziz, Kim, &

Fahey, 2004; Kloss & Lisman, 2002; Sloan, Marx, & Epstein, 2005), and it has also found to be ineffective in certain populations. There is evidence that expressive writing may not be effective for patients with metastasised breast cancer (e.g., Mosher et al., 2012), adults caring for their dependent elderly family members (e.g., Mackenzie, Wiprzycka, Hasher, & Goldstein, 2007), caregivers of children with chronic illnesses (e.g., Schwartz & Drotar, 2004), children of alcoholic parents (e.g., Gallant & Lafreniere, 2003), individuals diagnosed with bulimia nervosa (e.g., Johnston, Startup, Lavender, Godfrey, & Schmidt, 2010), individuals grieving the loss of a loved one (e.g., O'Connor, Nikoletti, Kristjanson, Loh, & Willcock, 2003; Range, Kovac, & Marion, 2000; Stroebe, Stroebe, Schut, Zech, & van den Bout, 2002), individuals who had been the victim of a sexual assault (e.g., Kearns, Edwards, Calhoun, & Gidycz, 2010), individuals diagnosed with posttraumatic stress disorder (PTSD; e.g., Sloan, Marx, & Greenberg, 2011), or survivors of natural disasters (e.g., Smyth et al., 2002). Expressive writing may also have an iatrogenic effect in some populations. For example, across two separate studies, participants with PTSD who engaged in expressive writing had subsequent increases in intrusive and avoidant symptoms, as well as an increase in visits to their physician (e.g., Gidron et al., 2002; Gidron, Peri, Connolly, & Shalev, 1996). In a study of adults who had been victims of childhood sexual abuse, the participants reported an increase in physical symptoms and no change in number of physician visits, psychological distress, or depressive symptomatology after engaging in expressive writing, whereas the control group actually showed decreases in both physical and psychological symptoms (Batten, Follette, Rasmussen Hall, & Palm, 2002). It has been proposed that it may not have been effective in these populations because it does not allow for more intense processing that maybe required to deal with the emotions surrounding the event written about. For example, it has been suggested that for PTSD, merely recalling a traumatic event

without processing and debriefing may actually lead to increased use of avoidance strategies, and worsening symptoms (Gidron et al., 2002; Gidron et al., 1996; Sloan et al., 2011).

Due to the fact that this intervention does not have a universally positive effect, it is important to know for which groups it is recommended for use, where the most significant effects are found, as well as what conditions are necessary for the greatest effect. The most recent meta-analysis in the expressive writing literature (Frattaroli, 2006), sought to define potential moderators of the expressive writing paradigm, identify which outcomes it has had the greatest effect on, as well as to define which study parameters resulted in stronger effects overall. This meta-analysis examined the effects of expressive writing across 146 published and unpublished studies (48% unpublished). Results confirmed that expressive writing was beneficial for participants, with an overall r -effect size of .0875 (Cohen's $d = .151$). Although this effect size is relatively small using traditional standards, some researchers have noted that the effectiveness of an intervention should be measured not by the overall size of its effect, but rather by its effect relative to its costs and benefits (Frattaroli, 2006). It is therefore important to consider that this intervention has several advantages: it is free, non-invasive, and can be done independently. Additionally, most participants perceive the writing to be helpful. Thus, it is argued that any non-zero positive effect size is worth noting (Frattaroli, 2006). In this meta-analysis, effect sizes were found to be larger in studies that: included only participants with a history of trauma and/or stressors, did not draw from college samples, had participants complete expressive writing at home (or in another private setting), had at least three writing sessions (which lasted 15 minutes or more), had participants write about more recent events, and had specific writing instructions (i.e., provided more directed questions or specific examples of what to disclose). The author also identified eight studies that were considered optimal (e.g., those

with private writing sessions, specific writing instructions, and at least three days of writing 15 minutes or more), and found the average *r*-effect size of those studies to be .20. This larger effect size found in more properly administered studies provides evidence that the expressive writing paradigm may have an effect that is, even by conventional standards, between small and medium, at least when administered under more “optimal” conditions.

Results of the meta-analysis also indicated that: the psychological outcomes of distress, depression, subjective well-being, anger and anxiety were consistently found to improve as a result of expressive writing; the physiological outcomes of immune functioning, HIV viral load, liver function, self-reported health, and dopamine were found to be consistently improved by expressive writing; and that outcomes concerning work, social relationships, cognitive functioning and school were also shown to improve with expressive writing. One other important finding was that the majority of participants in the expressive writing conditions perceived the writing to be a positive experience and believed it to be helpful, which would likely increase the likelihood that the task would be completed in a non-experimental setting.

Why does expressive writing work? There are a number of proposed theories as to why expressive writing confers benefits to participants, yet no single theory seems to totally account for its effect. The first proposed theory was a theory of “inhibition”, wherein it was thought that if participants disclosed events that they had previously not disclosed, improvements in health would be observed (Frattaroli, 2006; Pennebaker & Chung, 2011). This theory was developed out of the discovery that people who had experienced trauma, but did not confide in others, were more likely to report health problems (e.g., Pennebaker & Susman, 1988). Although this theory helped to generate interesting and testable hypotheses early on, the evidence in support of it has been mixed. Many studies have found no difference in the health benefits brought about by

writing about disclosed or undisclosed events (e.g., Greenberg & Stone, 1992 Greenberg et al., 1996; Pennebaker et al., 1988), and more recent meta-analytic evidence suggests that it is writing about more recent, and not older unresolved events that confers the most benefit (Frattaroli, 2006).

In an effort to discover different explanations for the reason that participants benefitted from expressive writing, Pennebaker et al. (1990) asked participants who had reported a benefit in the process to explain the reason they thought it was beneficial. A large majority of participants indicated that the writing process had allowed them to gain more insight into what had happened to them. This led to the proposal of a cognitive processing theory, which argued that the benefit of expressive writing may come from the creation of an organized, coherent, and integrated narrative (Frattaroli, 2006). Since the proposal of this theory, a number of studies have used textual analysis software (Linguistic Inquiry and Word Count [LIWC]; e.g., Pennebaker, 1993; Pennebaker, Francis, & Booth, 2001), and have found that participants who had the greatest benefit from expressive writing showed increases in causation (e.g., because, cause, effect) and insight (e.g., understand, consider, know) words (e.g., Boals, 2012; Frattaroli, 2006; Graybeal, Seagal, & Pennebaker, 2002; Klein & Boals, 2001; North, Meyerson, Brown, & Holahan, 2013; Park & Blumberg, 2002; Pennebaker, 1993; Pennebaker & Chung, 2011; Pennebaker & Seagal, 1999). However, studies that used theory driven instructions to attempt to increase cognitive processing in participants did not result in increased effect sizes (Frattaroli, 2006). Therefore, this theory may only be a part of the reason that expressive writing works to create benefits for people.

A third proposed theory is that increased emotional processing is related to its benefits. This theory has also been tested using textual analysis software (LIWC) to analyze the use of

negative and positive emotion words. A number of studies have found that the more positive emotion words used, the greater the health benefits (e.g., Baum & Rude, 2013; Burton & King, 2009; North et al., 2012; Pennebaker & Chung, 2011; Pennebaker & Francis, 1996; Richards et al., 2000). The relationship of negative word use to health benefits has been found to be slightly more complicated however, with both high and low negative word use related to less benefit, but a moderate level of negative word use being ideal (e.g., Baum & Rude, 2013; Burton & King, 2009; Norman et al., 2004; North et al., 2011; Pennebaker & Chung, 2011; Pennebaker & Seagal, 1999; Richards et al., 2000; Sloan et al., 2007). However, again, it is important to note that support for this theory has not been universal (Pennebaker & Chung, 2011).

A more recently proposed theory involves social changes, and has been referred to as the social integration model (Frattaroli, 2006). This theory argues that expressive writing leads to changes in the way people interact with others in their social world, which results in improvements in health and well-being. Evidence for this theory comes from studies that have found that participants who engage in expressive writing were more likely to talk about their experiences with others (e.g., Kovac & Range, 2000), and were more likely to report higher levels of social support from friends and family (e.g., Heffner, 2002). There is even some evidence that after engaging in expressive writing, participants were likely to make small changes in their social networks and even laugh more (e.g., Pennebaker & Graybeal, 2001). Conversely, this theory is relatively new, and has received little attention in studies. Additionally, many studies have found social changes in the absence of any significant health benefits (Frattaroli, 2006).

A different proposed theory is that expressive writing is beneficial because it is similar to exposure therapy, in that participants are able to express their thoughts and emotions regarding

an upsetting event on several subsequent days, thus potentially leading to an extinction of negative thoughts and feelings. Support for this theory has been mixed as well, with some studies finding that disclosure reduces intrusive thoughts (e.g., Boals, 2012; Hirai et al., 2012; Klein & Boals, 2001; Maestas & Rude, 2012; Páez et al., 1999; Park & Blumberg, 2002), and others failing to find such a reduction (e.g., De Moor et al., 2002; Lepore, 1997). In addition, unlike exposure, expressive writing does not seem to be effective in reducing post-traumatic stress symptoms in participants with PTSD, and may even cause negative effects in those individuals (e.g., Gidron et al., 1996, 2002; Sloan et al., 2011).

Finally, the most recent theories have focused on increased awareness involved in expressive writing, as well as its similarities to mindfulness based interventions. Researchers have proposed that expressive writing helps clients to gain increased awareness, or insight into themselves and their emotions (Brody & Park, 2004; Pennebaker & Chung, 2011). Evidence has consistently shown benefits to increased awareness, insight, or self-reflection. For example, self-reflection has been shown to be positively correlated to both self-empathy, and empathy towards others (Joireman, Parrott, & Hammersla, 2002; Trapnell & Campbell, 1999). Insight has also been shown to be a robust positive predictor of psychological well-being (Harrington & Loffredo, 2011), and to be positively correlated with life satisfaction and happiness (Lyke, 2009). Brody and Park (2004) also argue that expressive writing shares similarities with mindfulness-based interventions such as mindfulness-based cognitive therapy (MBCT; Ma & Teasdale, 2004; Teasdale et al., 2000). MBCT uses mindfulness and attentional control techniques with clients to change behaviours and thoughts, which has proven to be effective in the prevention of depression relapse (e.g., Ma & Teasdale, 2004; Teasdale et al., 2000) and in reducing overgeneralization of autobiographical memory in individuals with depression (e.g.,

Willams, Teasdale, Segal, & Soulsby, 2000). The fact that this therapeutic approach focuses on changing thoughts and has demonstrated efficacy in the treatment of depression suggests that it may be possible to increase a person's level of perceived social support through the use of mindfulness and attentional control techniques. MBCT tends to aim at increasing awareness of the negative thoughts and feelings that clients may be experiencing, and changing their relationships with those thoughts and feelings so that their behaviour is no longer controlled by them (Ma & Teasdale, 2004; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). However, it may be possible following the same principles to have clients be more mindful and attentive to positive support received by others (no matter how small), and thereby increase perceived social support. This may in turn alleviate some depressive symptoms by reducing ERS and interpersonal rejection. Brody and Park (2004) point out that both expressive writing and techniques such as MBCT focus on the present (i.e., people in mindfulness-based intervention programs focus on their "here-and-now" experiences, and participants in expressive writing interventions write about their current thoughts and feelings about a specific event). They also propose that the underlying mechanisms of change may be similar between these interventions, citing the cognitive change and exposure theories of why expressive writing works as similar to theories on how mindfulness brings about its benefits (Baer, 2003, 2007). Specifically, expressive writing can allow participants over the course of multiple writing sessions come to a better understanding of events that have taken place as well as act as a form of exposure (Frattaroli, 2006; Pennebaker & Chung, 2011). Similarly, mindfulness requires participants to sustain their attention on current experiences as they occur (Bishop et al., 2004) as well as undergo voluntary exposure to potentially aversive stimuli to reduce negative emotions and lead to more adaptive responses (Brown, Ryan, & Creswell, 2007). There is some evidence supporting increased

awareness in expressive writing, as well as some evidence suggesting that those participants who are higher on measures of mindfulness benefit more from expressive writing (e.g., Poon & Danoff-Burg, 2011). Overall, however, few studies have examined these two theories.

All of the proposed theories regarding why expressive writing works have mixed evidence, so it may be that the mechanism of action is complex and therefore cannot be accounted for by any single theory. Perhaps an integration of theories is best to explain how expressive writing works.

Gaps in the literature. Despite the increasing interest in expressive writing since its introduction in the mid-1980s and the substantial body of research dedicated to the paradigm, there are still a number of gaps in the literature. First, many studies have found that writing about negative or traumatic events, although it leads to longer-term physical and psychological health benefits, does lead to increased negative mood in the short-term (reviews by Frattaroli, 2006; Pennebaker & Chung, 2011; Pennebaker & Seagall, 1999; Smyth & Pennebaker, 2008). However, a few studies have examined writing about positive events and found similar physical and psychological health outcomes, without the side-effect of increased negative mood in the short-term (e.g., Burton & King, 2004, 2009; King, 2001, 2002; King & Miner, 2000). Despite this apparent advantage, there are still relatively few studies that have examined the effects of positively focused expressive writing, and this is an area that requires further exploration.

Another gap in the literature is related to the optimal study characteristics outlined in the meta-analysis by Frattaroli (2006). Although Frattaroli points out that studies were most likely to be effective if they: provided participants with specific writing instructions, allowed participants to write in private (usually at home), and had three or more writing sessions (which were 15 minutes or more each), many researchers have continued to conduct studies that did not meet

these optimal criteria. It is important that future research in this area attempt to design their studies using these optimal criteria so that the likelihood of finding effects is increased. Although there have been some issues with ignoring optimal criteria, there have also been recent advances in the administration of expressive writing. One example is the use of online collection methods, which allow participants to complete writing tasks in private and anonymously, while still allowing researchers to collect the writing for later analysis (e.g., Hirai et al., 2012). This method not only allows participants to write in a private setting, but also allows participants to be more anonymous. This may improve participants' willingness to disclose sensitive information (e.g., Emmelkamp, 2005; Hanna, Weinberg, Dant, & Berger, 2005; Joinson, 2001; Joinson, Woodley, & Reips, 2007; Tate & Zabinsky, 2004). In spite of this advancement in collection methodology, many studies still utilize group writing sessions, and do not take advantage of the online writing venue.

Frattaroli (2006) also identified certain psychological outcomes which were most likely to be improved by expressive writing interventions (specifically distress, depression, subjective well-being, anger, and anxiety). However, many researchers have focused on areas like post-traumatic stress and grief, which expressive writing has been shown not be effective in reducing, instead of focusing on how to have the largest impact on the psychological outcome variables that it has been shown to have an effect. Although more recently there has been an increased focus on depression (e.g., Baikie et al., 2012; Baum & Rude, 2013; Krpan et al., 2013), it is important that more research on the effects of expressive writing on this disorder be done.

Dissertation Studies

To date, there have been no studies that have examined positive expressive writing on depression using an optimal study design as specified by Frattaroli (2006). Accordingly, my

dissertation studies examined writing about social support using online and face-to-face collection methods in university student samples. These studies provided specific writing instructions focused on social support, allowed participants to write in the privacy of their own homes using an online system, and had four writing sessions. Therefore, the studies met the criteria for an optimal study design specified by Frattaroli (2006). Study 1 was conducted to test if there was any effect on perceptions of social support, excessive reassurance seeking, and depression, while Study 2 focused on participant experiences of the writing. This intervention approach was unique in that although other interventions for depression may have some focus on social support, they do not focus exclusively on it, even when they are called social support interventions. Additionally, this intervention focused on positive social support experiences as opposed to focusing on problems or symptoms associated with depression per se. Thus, it was more similar to positive psychology and gratitude interventions (e.g., Seligman et al., 2005) than it was to traditional psychotherapeutic approaches.

Advantages of Online Interventions

My dissertation delivered an EW for perceived social support intervention entirely via the Internet. This approach has a number of advantages over face-to-face interventions. First, self-disclosure in Internet-based venues is often increased as many participants report feeling “safe enough” online to share personal information that they would not normally disclose in person (Nicholas, McNeil, Montgomery, Stapleford, & McClure, 2004). Online versions of surveys may result in more accurate as well as more abundant information being provided as opposed to a face-to-face format. For example, in a 2001 article, Joinson examined the results of three separate studies and found that participants disclosed significantly more in computer-mediated discussions as opposed to face-to-face discussions, and that participants who were visually

anonymous disclosed significantly more than those who were not anonymous. The results of a 2005 study by Hanna, Weinberg, Dant, and Berger suggested that individuals who respond to surveys online are more self-aware and thoughtful, and thus more likely to disclose more as well as deeper feelings. A third study (Joinson, Woodley, & Reips, 2007) found that disclosure on sensitive items was significantly higher when participants were guaranteed anonymity. These results, taken together, suggest that online methods may be superior to face-to-face methods in certain instances.

Second, the Internet is easily accessible for a large number of people, with this number growing over time as the divide in Internet use among socioeconomic groups has been steadily closing (Katz & Rice, 2002; Zickurh & Smith, 2012). This allows for the possibility of very wide distribution of interventions, which allows more individuals with problems to receive help that they may not have access to otherwise, thus decreasing the gap between untreated and treated individuals (Layous, Chancellor, et al., 2011; Layous, Nelson, et al., 2013; Schuller & Parks, 2012). Some other positives of computer-mediated interventions are that participants can read and write at their own pace, there is greater anonymity and confidentiality, there is reduced risk in disclosure, and there is reduced dependency on and inequality to a support provider (Pfeil, 2009). Online interventions may also increase engagement in therapeutic written disclosure, by allowing participants to focus on a common theme and relieving them of other social expectations (Wright & Bell, 2003).

It is clear that Internet-based delivery of interventions may have a number of advantages, yet it is important to note that they tend to have relatively high attrition rates. Therefore, to try to decrease the number of drop-outs, they should be designed to be as interesting and engaging as possible, and to have the least burden on clients (Abbott, Klein, Hamilton, Rosenthal, 2009;

Mitchell et al., 2010; Paterson, Brewer, & Leeseberg Stamler, 2013; Shapira & Mongrain, 2010).

I attempted to make the writing tasks in my dissertation studies as interesting as possible, and made the writing time only 10 minutes per day to avoid placing a burden on participants.

Overview of Dissertation Studies

This dissertation was composed of two separate studies examining an EW intervention that targeted social support. As both studies were preliminary studies, they were conducted using predominantly non-depressed University student samples. Study 1 was conducted to establish if this targeted EW intervention would influence perceptions of social support, excessive reassurance seeking, and depressive symptoms. This was done by examining the effects of the targeted EW intervention compared the effects of a control writing condition. Quantitative analyses were conducted to establish differences between the groups and effects of the targeted EW intervention. This was the first study to utilize EW instructions that were focused specifically on social support, a vulnerability factor for depression. Study 2 was conducted to gain a deeper understanding of participant experiences of engaging in a targeted EW intervention. This was done by interviewing participants after they had completed the EW intervention and then using content analysis (Hsieh & Shannon, 2005; Mayring, 2000), a form of qualitative analysis, to sort and analyze the interview data. Although past EW studies have examined participant experiences of EW to a small extent (e.g., asking participants if they found the intervention to be helpful), this was the first substantive effort to interview participants about their experience of EW in-depth.

Chapter 2: Study 1

Major Depressive Disorder is a psychological disorder characterized by general low mood, a loss of interest in usual activities, and a diminished experience of pleasure. It also involves other behavioral, cognitive, and physical symptoms, including feelings of worthlessness or guilt, difficulty concentrating, changes in sleep patterns, appetite, or weight, loss of energy or fatigue, and recurrent thoughts of death (American Psychiatric Association [APA], 2013). Currently, the World Health Organization (WHO) ranks depression as the third leading cause of disability worldwide, and it is projected to be the number one cause by the year 2030 (WHO, 2008). International epidemiological studies have found lifetime prevalence rates ranging from 1.5% to 19.0%, with higher rates generally being noted in more developed countries (Kessler et al., 2003; Weissman et al., 1996).

Depression has been linked to a number of negative interpersonal outcomes. For example, research has demonstrated that it is a “contagious” disorder, with those in close relationships with a depressed person being more likely to either have or develop the disorder as well. This effect has been found within families (e.g., Hammen et al., 2004; Pilowsky et al., 2006), as well as between romantic partners and roommates (e.g., Joiner, 1994; Joiner et al., 1992). Furthermore, depression has been found to be related to an increased likelihood of being rejected by significant others, friends, and even strangers (e.g., Joiner & Katz, 1999; Starr & Davila, 2008), perceptions of social support (e.g., Coyne, 1976; Lakey & Cronin, 2008; Zimmer & Chen, 2012), negative feedback seeking (i.e., depressed individuals seeking self-verifying negative feedback from others; Swann, 1990; Timmons & Joiner, 2008), and seeking reassurance from others about whether or not they care (Joiner & Metalsky, 2001; Timmons & Joiner, 2008).

It is clear that a significant number of people worldwide experience depression. This affects not only the individuals who experience depressive symptoms, but also has a major effect on the people around them. Unfortunately, many individuals who experience depressive symptoms do not seek or receive treatment (e.g., Corrigan, 2004; Layous et al., 2011). For example, it is estimated that in the United States and Canada only between 30-40% of individuals who are reported to have depression receive minimally adequate treatment (Corrigan, 2004; Kessler et al., 2001; Layous et al., 2011; Mood Disorders Society of Canada, 2010; National Institute of Mental Health, 2004; Reiger et al., 1993). The two most cited reasons for this low number of individuals receiving adequate treatment are: stigma (e.g., Corrigan, 2004; Layous et al., 2011), and the high cost of traditional treatments (e.g., Layous et al., 2011). These estimates suggest that between 60-70% of individuals with reported depression either do not receive adequate treatment, or receive no treatment whatsoever. Given the low numbers of adequately treated individuals, it is important to explore and develop new methods of treating these symptoms.

Expressive Writing and Depression

Expressive Writing (EW) is a specialized form of writing that focuses on having the writer express feelings and emotions. The focus of this form of writing is to allow the writer to experience, process, and express emotions about a particular topic (Pennebaker, 1997). Therefore, although EW samples may contain familiar aspects of a typical narrative (e.g., a normal story arc consisting of a beginning, middle, and end), they do not need to, as the end goal is not to create a document that is necessarily accessible to other readers. James Pennebaker and colleagues pioneered the Pennebaker (expressive) writing paradigm in the mid-1980s. Within their experiments, as well as others inspired by their work, experimental group participants are

instructed to write down their deepest thoughts and feelings about a traumatic or emotionally difficult experience for 10 to 20 minutes, for three to five consecutive days. In contrast, control group participants are typically instructed to write about something mundane or trivial (e.g., describe their day in objective terms; Pennebaker & Beall, 1986; Smyth & Pennebaker, 2008). Even though most studies have focused on writing about negative life events, some more recent studies have instructed experimental group participants to write down their deepest thoughts and feelings about positive events (e.g., Burton & King, 2004, 2009).

In a large number of studies, EW has been found to be beneficial for physical and psychological outcomes. For both outcomes combined, the overall effect size of EW has been estimated to be $d = .151$ (Frattaroli, 2006). Although this effect size is relatively small using conventional standards, some researchers have suggested that the importance or strength of an intervention should not be measured only by its overall effect size, but rather by its effect relative to its costs and benefits (e.g., Frattaroli, 2006; Glass, McGaw, & Smith, 1981; Prentice & Miller, 1992). Therefore, it is important to consider the advantages of this intervention. Namely, it is free, non-invasive, and can be done independently. Moreover, most participants report finding the writing to be helpful (70.7% of participants over a number of studies reported a positive attitude about the writing; Frattaroli, 2006). With these benefits in mind, it is argued that any non-zero effect size is worth noting (Frattaroli, 2006). In contrast to these encouraging results found in the Frattaroli (2006) meta-analysis, a more recent meta-analysis conducted by Reinhold, Bürkner, & Holliong (2018), which focused specifically on the effects of expressive writing on depression, found that the effect size was not significantly different from zero. However, it is important to note that effect sizes (measured using Hedges g) ranged from -2.15 to $.68$ (Reinhold et al., 2018), and therefore, it is possible that there is an effect, at least for some individuals or

samples. Additionally, a commentary article (Rude & Hanner, 2018), suggests that rather than abandon the idea of utilizing expressive writing to reduce depressive symptoms, researchers should instead focus more systematically, in a more nuanced manner to determine what differences can contribute to whether or not this intervention may or may not work for individuals with depressive symptoms.

To date there have been four studies that specifically examine EW as an intervention for depression. All four have used the standard EW instructions, with one study also having a positive writing condition. Participants had a variety of symptom levels, ranging from subclinical depression to diagnosed major depressive disorder. Three of these four studies indicated that EW is associated with reduction in symptoms (Baum & Rude, 2013; Gortner et al., 2006; Krpan et al., 2013), with this impact still being evident at four-week (Krpan et al., 2013) and six-month follow-up (Gortner et al., 2006). It should be noted that one study did not find a significant difference between groups (i.e., experimental, control, and a positive writing condition), with all three groups improving significantly on mental and physical health outcomes (Baikie et al., 2012). There also appears to be some limit on the impact of EW on participants with high initial depression scores. Those individuals actually had worse outcomes than those in the control group (Baum & Rude, 2013), warranting further investigation of EW for these individuals.

One limitation of these studies examining EW and depressive symptoms is that, like other EW studies, the writing focuses on a general emotional, stressful, or traumatic event. This means that the writing does not focus on the context or experience of depression itself. That is, EW interventions are not specifically targeting factors related to depression. For example, although depression appears to exist within a strong interpersonal context and has multiple interpersonal consequences, no current EW intervention specifically targets social support.

Depression and Perceived Social Support

Social support can be defined as the “provision of psychological and material resources intended to benefit an individual’s ability to cope with stress” (Cohen, 2004, p. 676). Early research focused on a superordinate construct simply labeled “social support”. However, as the research evolved, investigators found it useful to distinguish between two subordinate components: received (or enacted) social support, which refers to tangible acts of social support, and perceived social support, which is composed of both perceptions of availability and satisfaction with support (Finch et al., 1999). Meta-analysis of these two categories suggests that perceived social support is much more closely related to psychological distress than is enacted social support ($r = -.32$ and $r = .12$ respectively; Finch et al., 1999). As a result, in this study I have chosen to focus solely on perceived social support.

Perceived social support can be further defined as the belief or perception that one is cared for and is a member of a mutually beneficial social network (Cobb, 1976). These perceptions of social support play a key role in interpersonal theories of depression. In Coyne’s (1976a) theory of depression, it is hypothesized that low levels of perceived social support cause uncertainty about the self and supportive others and lead to depressive symptoms as well as excessive reassurance seeking behaviors. Since the introduction of this theory, many researchers have examined the role of perceived social support in depression, and have found evidence for a direct effect of social support on depression (e.g., Bozo et al., 2009; Grav et al., 2011; Khatlib et al., 2013; Zimmer & Chen, 2012). Several longitudinal studies have established that low levels of perceived social support are predictive of increased depressive symptoms (e.g., Bozo et al., 2009; Khatlib et al., 2013; Skipstein et al., 2012; Zimmer & Chen, 2012), and have also found that high levels of perceived social support are protective against the development of future

depressive symptoms (e.g., Bozo et al., 2009; Lakey & Cronin, 2008; Petit et al., 2011; Zimmer & Chen, 2012). Studies have also demonstrated a relationship between excessive reassurance seeking, perceptions of social support, and depression. For example, a number of studies have identified excessive reassurance seeking as a moderator between low levels of perceived social support and depressive symptoms. Results of these studies have demonstrated that those who have low perceptions of social support combined with excessive reassurance seeking have higher depressive symptoms compared with individuals who have low perceptions of social support but do not engage in excessive reassurance seeking (e.g., Joiner, 1999; Joiner et al., 1993; Joiner & Metalsky, 1995; Katz & Beach, 1997). Additionally, one longitudinal study demonstrated that excessive reassurance seeking only led to increases in depressive symptomology in the presence of low perceived social support (Haefffel et al., 2007).

Current Study

Social support is a key theoretical component of interpersonal models of depression (e.g., Coyne, 1976a). Whereas high perceived social support is protective against depressive symptoms, low perceived social support is a powerful vulnerability factor for depression (Lakey & Cronin, 2008). This speaks to the utility of social support as a potential treatment target. That is, if individuals' perceptions of social support can be increased, it is possible that their depressive symptoms will decrease or perhaps not develop at all. Furthermore, given that high levels of perceived social support are protective, this could also prevent depressive relapse. Increasing perceptions of social support may also help in decreasing excessive reassurance seeking, as those who are more secure in their social support would be less likely to need frequent reassurance. There is some evidence that interventions can increase perceived social support (Barrera et al., 2002; Brand et al., 1995) and that they can also improve mood and

decrease depressive symptoms. However, it is important to note that there has been some evidence that social support interventions, such as support groups, can result in worse outcomes for those who begin treatment with high levels of perceived social support (e.g., Frasure-Smith et al., 1997; Helgeson, Cohen, Schulz, & Yasko, 2000). Cognitive behavioral therapy (CBT) for depression has also been shown to impact perceived social support (e.g., Martin et al., 2011; Stice et al., 2011). A large review of social support interventions (Hogan et al., 2002) reported that many of the interventions that have been found to be effective in improving mood and decreasing depressive symptoms did not simply target perceived social support. Instead, they focused specifically on mood and depressive symptoms as goals for change in treatment. Furthermore, most studies did not actually measure social support, or used “homemade” measures with no established psychometric properties. Many only assumed that social support had increased, and that this increase conferred the other benefits of the interventions (Hogan et al., 2002). One purpose of our current study was to specifically target social support, which in turn is posited to impact depressive symptoms as well as excessive reassurance seeking, and to measure social support with an established self-report questionnaire.

A major limitation of therapeutic interventions for perceived social support and depression, however, is that they are resource intensive. For example, individuals must dedicate time to finding a therapist and attending sessions, and psychotherapy can be costly. In contrast, as previously mentioned, EW interventions are free, short (e.g., 10-20 minutes), can be completed in the individual’s own spare time in the privacy of their own homes, and do not require the assistance of a therapist. This type of intervention, especially if delivered in an online format, as within this study, could therefore overcome many of the obstacles preventing

individuals from seeking traditional forms of treatment, such as cost, stigma, and time commitments required in traditional therapy.

In this study, I examined the effect of an EW intervention, designed to specifically target perceptions of social support in a primarily non-depressed undergraduate student sample. This sample was chosen purposefully, as undergraduate students, especially those in their first year, experience high levels of stress. For example, in a nationwide survey conducted in the U.S., an alarming 85.7% of college students reported feeling overwhelmed by the demands of college life (American College Health Association, 2016). Studies also indicate that many university students have difficulties adjusting to the demands and challenges of university life and difficulties coping with related stress (e.g., Abdullah, Elias, Mahyuddin, & Uli, 2009; Awang, Kutty, & Ahmad, 2014; Elias, Noordin, & Mahyuddin, 2010; Noordin, Elias, & Mahyuddin, 2009). Experiencing high levels of stress can put individuals at risk for developing depressive symptoms (e.g., Brown & Harris, 1978, 1989; Cohen & Wills, 1985; Cronkite, Moos, Twohey, Cohen, & Swindle, 1998; Hammen, 1991, 2005; Kessler, 1997; Lazarus & Folkman, 1984; Liu & Alloy, 2010; Mazure, 1998; Monroe & Reid, 2009). It is also the case that university and college students who are affected by depression tend to have lower grade point averages and are more likely to drop out prior to finishing a degree (Eisenberg, Golberstein, & Hunt, 2009). Indeed, depression rates among college and university students have been estimated to be higher than in the general population (Blanco et al., 2008; Eisenberg, Hunt, & Speer, 2013; Hunt & Eisenberg, 2010; Soet & Sevig, 2006; Zivin, Eisenberg, Gollust, & Golberstein, 2009).

Although rates of depression are relatively high in university and college student samples, these students may be less likely to seek or receive traditional treatment than individuals in the general population (e.g., Herman et al., 2011). Three possible explanations of

this underutilization of mental health treatment by college students are: 1) lack of access to effective treatment (either real or perceived), 2) unwillingness to access treatment due to sociocultural stigma (either real or perceived), 3) lack of knowledge about the treatability of depression (Herman et al., 2011). Alternative treatment strategies, particularly those that are relatively easy to engage with (i.e., online interventions conducted in the client's own time and private space) might address these concerns.

There are other important reasons to investigate alternative treatments for this population as well. Studies have demonstrated that individuals with higher perceptions of social support are at lower risk of developing depressive symptoms (e.g., Bozo et al., 2009; Lakey & Cronin, 2008; Petit et al., 2011; Zimmer & Chen, 2012). Undergraduate students, particularly in their first year of university, may experience changes in their social networks, and this may result in the feeling that social support is not as available (e.g., Mattanah et al., 2010; Wilcox, Winn, & Fyvie-Gauld, 2005). For example, for many first year college students, this may be the first time they are living away from home, and transitioning to university may involve moving to a different city, away from family and friends. The transition into university may also mean losing contact with friends who do not go to university, and may result in less frequent or direct contact with both friends and family. All of these changes in individuals' social networks may result in the perception that less social support is available to them (e.g., Mattanah et al., 2010; Wilcox et al., 2005). This makes perceptions of social support a potential target for treatment.

One possible alternative to traditional therapeutic interventions for undergraduate students is an online EW intervention focused on social support. This intervention may be helpful not only to those experiencing depressive symptoms, but may also be useful as a preventative strategy to stop the development of depressive symptoms all together. In the current

study, participants in the experimental group were asked to write about any instances of social support they received daily for four consecutive days. I measured the impact of the EW task on perceptions social support, as well as depressive symptoms and excessive reassurance seeking. This intervention was delivered in an online format, which has the advantages of being easily accessible to a large number of individuals (Katz & Rice, 2002; Zickurh & Smith, 2012), providing a reduced risk in disclosure, in that there is greater anonymity and confidentiality (Pfeil, 2009), and that there may be a higher level of disclosure than in face-to-face situations (Hanna et al., 2005; Joinson, 2001; Joinson et al., 2007; Nicholas et al., 2004). For phase one of the analysis, I hypothesized that those in the experimental group would see reductions in depressive symptoms, increases in perceived social support, and decreases in excessive reassurance seeking. I also hypothesized that these effects would be stronger for those with higher depressive symptom scores.

I extended this study beyond simply determining whether or not our EW intervention impacted social support, depression, and reassurance seeking. I included the investigation of linguistic differences between our experimental and control groups, and the examination of the process of change in our experimental group. I used the Linguistic Inquiry Word Count (LIWC), a textual analysis software package that counts percentages of words falling into specific psychologically relevant categories (e.g., thinking styles, emotions, and social concerns). This software was used to compare groups as well as to study which linguistic aspects of the EW intervention predicted outcomes. For phase 2 of the analysis, I hypothesized that compared to participants in the control group, participants in the experimental group would use more positive and negative emotion words, more causal and insight words, and more social words. No

hypotheses were made about which linguistic aspects of the EW intervention would predict outcomes, as this was an exploratory analysis of this particular EW intervention.

Method

Participants

There were no inclusion or exclusion criteria used for participation in this study. One hundred seventeen undergraduate, introductory psychology students from the University of Saskatchewan were recruited through the SONA system, which is an online study sign up system wherein students can sign up to participate in psychological studies in exchange for credits in their courses. For the purposes of this study, participants were granted two credits (two percentage points to be added to their final course grade), in exchange for completing it. Seven participants dropped out, leaving a total sample of 110 participants.

The first 25 participants were originally collected as part of a pilot study with no control group, and as a result were part of the experimental group within this study. As a result the last 25 participants were also non-randomized and assigned to the control group to balance numbers. Participants 26 through 85 were randomly assigned to the control or experimental group using the coin flip application at <http://www.random.org>. Comparing the randomized participants to non-randomized participants at pre-intervention revealed no significant differences in Center for Epidemiologic Studies Depression Scale Revised (CESD-R) scores ($M_{\text{randomized}} = 15.82$, $M_{\text{non-randomized}} = 11.82$, $t(108) = -1.887$, $p = .062$), Multidimensional Scale of Perceived Social Support (MSPSS) scores ($M_{\text{randomized}} = 62.65$, $M_{\text{non-randomized}} = 61.98$, $t(108) = -.227$, $p = .820$), or Depressive Interpersonal Relationships Inventory: Reassurance Seeking Subscale (DIRI-RS) scores ($M_{\text{randomized}} = 12.12$, $M_{\text{non-randomized}} = 10.72$, $t(108) = -1.278$, $p = .204$). The Experimental group consisted of 55 participants (44 female) ranging in age from 18 to 41 ($M = 20.76$). The

Ethnic breakdown for the Experimental group was as follows: 58% European-Canadian ($n = 32$), 9.1% Middle Eastern ($n = 5$), 5.5% South Asian ($n = 3$), 3.6% each for Indigenous, Black/African-Canadian, and East Asian ($n = 2$ each), 1.8% Hispanic/Latino ($n = 1$), and 14.5% Other ($n = 8$). The Control group also consisted of 55 participants (38 female) ranging in age from 18 to 42 ($M = 22.45$). The Ethnic breakdown for the Control group was as follows: 50.9% European-Canadian ($n = 28$), 18.2% East Asian ($n = 10$), 7.3% each for Indigenous and Black/African-Canadian ($n = 4$ each), and 5.5% each for South Asian, Middle Eastern, and Other ($n = 3$ each).

The majority (92.73%, $n = 102$) of participants completed all four days of writing, with only eight missing one day of writing (four from each group). All 110 participants completed at least three days of the writing task and were included in our analyses.

Thirty-eight participants (18 in the Experimental group and 20 in the Control group) were identified as having at least subthreshold levels of depressive symptoms (meaning that they scored at least 16 on the Center for Epidemiologic Studies Depression Scale Revised). The Experimental group participants who were identified as having at least subthreshold levels of depressive symptoms consisted of 18 participants (16 female) ranging in age from 18 to 22 ($M = 19.67$). The Ethnic breakdown for this group was as follows: 66.7% European-Canadian ($n = 12$), 16.7% Middle Eastern ($n = 3$), and 5.6% each for Indigenous, South Asian, and Other ($n = 1$ each). The Control group participants who were identified as having at least subthreshold levels of depressive symptoms consisted of 20 participants (16 female) ranging in age from 18 to 39 ($M = 21.30$). The Ethnic breakdown for this group was as follows: 45% European-Canadian ($n = 9$), 20% East Asian ($n = 4$), 10% South Asian ($n = 2$), 5% each for Indigenous, Black/African-Canadian, and Middle Eastern ($n = 1$ each), and 10% Other ($n = 2$).

Baseline characteristics. There were no significant differences between the experimental and control groups in participant age [$M_{\text{experimental}} = 20.76$, $M_{\text{control}} = 22.45$, $t(108) = 1.673$, $p = .097$], gender [$\chi^2(1) = 1.725$, $p = .189$], ethnicity [$\chi^2(7) = 10.706$, $p = .152$], baseline perceptions of social support [$M_{\text{experimental}} = 61.15$, $M_{\text{control}} = 63.55$, $t(108) = .821$, $p = .414$], excessive reassurance seeking [$M_{\text{experimental}} = 11.96$, $M_{\text{control}} = 11.00$, $t(108) = -.882$, $p = .380$], or depressive symptoms [$M_{\text{experimental}} = 13.35$, $M_{\text{control}} = 14.65$, $t(108) = .612$, $p = .542$].

Comparing those participants who were identified as having at least subthreshold levels of depressive symptoms to those who were below this threshold revealed no significant differences in participant age [$M_{\text{subthreshold}} = 20.53$, $M_{\text{below threshold}} = 22.18$, $t(108) = 1.554$, $p = .123$], gender [$\chi^2(1) = 2.858$, $p = .091$], ethnicity [$\chi^2(7) = 3.129$, $p = .873$], or baseline perceptions of social support [$M_{\text{subthreshold}} = 60.71$, $M_{\text{below threshold}} = 63.21$, $t(108) = .812$, $p = .418$]. However, those classified as having at least subthreshold levels of depressive symptoms had higher baseline excessive reassurance seeking behaviours [$M_{\text{subthreshold}} = 13.34$, $M_{\text{below threshold}} = 10.50$, $t(108) = -2.537$, $p = .013$] and baseline depressive symptoms compared to those who were below this threshold [$M_{\text{subthreshold}} = 26.26$, $M_{\text{below threshold}} = 7.53$, $t(108) = -13.845$, $p < .001$].

Measures

The Center for Epidemiologic Studies Depression Scale Revised (CESD-R): The CESD-R (Eaton, Smith, Ybarra, Muntaner, & Tien, 2004; See Appendix A for items) is a 20-item self-report measure of depressive symptoms, focused over the previous week. For the purposes of this study, two items related to suicidal ideation were removed as is common practice at the University of Saskatchewan for research with undergraduate participants that is not exclusively studying suicidality. CESD-R items closely reflect DSM-IV criteria for depression. Each individual item is measured on a scale of 0 (*Not at all or less than one day*) to 3

(5-7 Days over the past week), with total scores ranging from 0 to 54 (down from the normal top range of 60 due to the removal of two items related to suicidality; items 14: “I wished I were dead”, and 15: “I wanted to hurt myself”, which were removed related to a standard practice at the University of Saskatchewan to remove items related to suicidality for anonymous studies). Although the tool can also be used to look at symptoms over the past two weeks, this study focused on symptoms over the past week to be more sensitive to changes that may have occurred due to engaging in the writing task. The tool has been used in this way in the past (Pigeon et al., 2011; Rethorst, Moynihan, Lyness, Heffner, & Chapman, 2011; Shim et al., 2013), and this does not impact the validity of the scale. A cut-off score of 16 is used to determine clinically significant subthreshold depressive symptoms. This cut-off score was used despite the removal of two items to be more conservative in the identification of participants who had symptoms in the subthreshold range, and to reduce the number of false positives that may have occurred if the cut-off was lowered. Using this cut-off there were 18 participants in the experimental group and 20 participants in the control group with at least subthreshold depressive symptoms.

The CESD-R has been found to have good psychometric properties (Eaton et al., 2004), and high internal consistency across studies ($\alpha = .93$ among primary care patients; Pigeon et al., 2011; Rethorst et al., 2011, and $\alpha = .92$ among a large sample of online and undergraduate responders; Van Dam & Earlywine, 2011). The CESD-R had high internal consistency in the current sample ($\alpha = .92$ and $\alpha = .93$ for pre- and post-intervention respectively).

Multidimensional Scale of Perceived Social Support (MSPSS): The MSPSS (Zimet, Dahlem, Zimet, & Farley, 1988; See Appendix B for items) is a 12 item self-report scale that measures perceived social support received from family, friends, and significant other in general (i.e., no time frame is given for the ratings). Each of the individual items is measured on a scale

of 1 (*very strongly disagree*) to 7 (*very strongly agree*). Two to three month test-retest reliability for the MSPSS has been found to be .85 for the scale as a whole and .72, .85, and .75 for Significant Other, Family, and Friend subscales respectively (Zimet et al., 1988). The scale also shows high internal consistency, with alpha coefficients ranging from .84 to .92 for the scale as a whole (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). The MSPSS had high internal consistency in the current sample ($\alpha = .93$ and $\alpha = .94$ for pre- and post-intervention respectively).

Depressive Interpersonal Relationships Inventory: Reassurance Seeking Subscale (DIRI-RS): The DIRI-RS (Joiner & Metalsky, 2001; See Appendix C for Items) is a 4-item self-report scale that measures the tendency to seek reassurance from others about whether or not they truly care (e.g. “Do you often find yourself asking people you feel close to how they truly feel about you?”) in general (i.e., no time frame is given for the ratings). Each individual item is measured on a scale of 1 (*no, not at all*) to 7 (*yes, very much*), with higher scores indicating higher levels of reassurance-seeking. The DIRI-RS has been shown to be reliable, with alpha coefficients ranging from .85 to .90 (Joiner & Metalsky, 2001), and a five-week test-retest reliability of .77 (Haefel et al., 2007). The DIRI-RS had high internal consistency in the current sample ($\alpha = .86$ and $\alpha = .91$ for pre- and post-intervention respectively).

Linguistic Inquiry and Word Count (LIWC). LIWC is a textual analysis software designed by Pennebaker and colleagues to count the percentage of words falling into specific psychologically relevant categories (e.g., thinking styles, emotions, social concerns, and parts of speech). The most recent version, LIWC 2015, has a dictionary of over 6,400 words, word stems, and even emoticons. The basis of this software is that writing certain words typically reflects psychological states of the writer (e.g., a person who is angry will tend to write more anger

words). The software works by counting the total number of words in a text and then tracking percentages of certain types of words designated by the researcher (e.g., positive and negative emotion words, social words, affiliation words, etc.). For example, if a text of 100 words were analyzed, and the writer used five anger words, the LIWC program would identify 5% anger words as well as add 5% to negative emotion words (since anger words are a subcategory of negative emotion words). Since words can belong to multiple categories, it is possible that word category percentages could total over 100%. The word categories are built into the LIWC software, but the researcher chooses which word categories to use in the analysis.

New to this version of the LIWC were so-called summary variables, which are calculated using proprietary algorithms and are scaled to reflect a 100-point scale ranging from 0 to 100. These summary variables can track emotional tone (which is derived from the ratio of positive vs. negative emotion words), analytical thinking (where higher numbers reflect more formal, logical and hierarchical thinking, and lower numbers reflect more informal, personal, and narrative thinking), and authenticity (where higher numbers are associated with more honest, personal and disclosing text, and lower numbers suggest a more guarded, distanced form of discourse).

Since the LIWC software does not handle spelling errors, the entries used in this study were first put into Microsoft Word where the spelling check feature of the software was used to correct spelling errors.

Dictionaries used in this study have been found to have relatively high internal consistencies, with alpha coefficients ranging from .55 (for negative emotion words) to .88 (for family referent words). J.W. Pennebaker stated that these alpha coefficients were calculated by looking at each of the words in a category in a large number of texts and seeing how each word

was statistically related to the sum of the other words in the category (personal communication, February 13, 2017). Dictionaries in LIWC have also been found to have high external validity, and tend to reflect participants' psychological states as measured by self-report questionnaires (Pennebaker, Boyd, Jordan, & Blackburn, 2015).

Procedure

Participants were e-mailed a link to complete informed consent (for a copy of the consent form see Appendix D) and the MSPSS, CESD-R, and DIRI-RS online (pre-intervention).

Starting the following day, for four consecutive days, participants completed daily EW entries online for 10 minutes each day. Participants were sent daily reminders to complete the EW task (for an example of communications sent to participants as daily writing reminders see Appendix E). They could complete this writing using any web enabled device, including computers, tablets, or smart phones. Participants in the experimental group were asked to write about specific instances of receiving social support from another person in an online diary. If they did not have an example from the current day, they were asked to recall a specific instance from the past to write about. They were instructed to write about any instance of social support, whether it is something small such as someone asking them how they are doing, or something larger such as someone comforting them when they were very upset (For a copy of the writing instructions see Appendix F).

More specifically, participants were told, "in your writing, try to really let go and explore your very deepest emotions and thoughts around being supported. Try to explore what it means to you to be supported by others, how it makes you feel, etc." In contrast, participants in the control group were asked to "write about how you spent your time today. Try to be as objective as possible, and try not to include emotions" (for examples of what participants wrote in the

experimental and control groups see Appendix G). In order to aid participants to keep track of time while writing, a timer on the daily diary webpage was provided. The day following the fourth day of daily diary entries, all participants were re-administered the MSPSS, CESD-R, and DIRI-RS and completed study debriefing (for a copy of the debriefing form see Appendix H), all online (post-intervention). EW entries were then analyzed using the LIWC. Prior to entering the EW data into LIWC, all EW samples were reviewed in Microsoft Word to identify spelling errors, which were then corrected using the spelling check feature of Microsoft Word. LIWC was then used to analyze the EW samples for percentage of word use in different categories.

Analyses

Data was analyzed in three distinct stages. First, a 2 (Group: Control vs. Experimental) x 2 (Time: Pre vs. Post) repeated-measures multivariate analysis of variance (MANOVA) was performed to determine if perceived social support (as measured by the MSPSS), excessive reassurance seeking (as measured by the DIRI-RS), and depressive symptoms (as measured by the CESD-R) changed significantly for the experimental and control groups from pre- to post-intervention. Additional ANOVAs were conducted to compare the effect of the intervention in those who scored at or above the at least subthreshold depressive symptoms level on the CESD-R ($CESD-R \geq 16$) to the effect in those who did not. It was decided to use this cut-off score instead of using depressive symptoms as a continuous variable because this is a clinically meaningful cut-off, with those scoring at or above the threshold being considered to have at least subclinical levels of depressive symptoms. This was important as I wanted to determine if participants who had at least subthreshold levels of depressive symptoms would experience different effects from the intervention. Additionally, past researchers have used this cut-off to compare individuals who scored at or above the threshold to those who scored below the

threshold (e.g., Poleschuck, Talbot, Moynihan, Chapman, & Heffner, 2013; Rethorst, Moynihan, Lyness, Heffner, & Chapman, 2011).

The second stage of analysis was conducted to examine differences in the writing between groups. The EW samples were analyzed using LIWC for total word counts, analytic writing style, authenticity, emotional tone, affect words, positive emotion words, negative emotion words, social words, family referent words, friend referent words, female referent words, male referent words, insight words, causal words, drive words, and affiliation words. LIWC analyzes text for words and word stems, and then counts the percentage of each word type within the text. LIWC variables were then compared between groups.

The third stage of analysis was conducted to investigate the process of change in the experimental group. Step-wise regression analyses were conducted, using peak levels (i.e., highest scores for each individual across the four days of study) of LIWC variables, to examine the relationship between LIWC variables and change in MSPSS, DIRI-RS, and CESD-R scores. Peak scores were used to give a better picture of variability in scores across the four days of writing. The regression analysis involved regressing post-intervention scores on LIWC variables after first controlling for pre-intervention scores. This method was used instead of using change scores because change scores can be unreliable, and can be more effected by regression towards the mean (Allison, 1990).

Results

Was the intervention successful?

Phase one of my analyses evaluated the efficacy of the EW intervention. Specifically, I examined whether EW about social support was related to changes in perceived social support,

reassurance seeking, and depressive symptoms, and whether these changes were specific to the experimental group.

Multivariate tests. A repeated measures MANOVA was run on MSPSS, CESD-R, and DIRI-RS scores. The multivariate tests revealed significant effects for Time $F(3, 106) = 12.928$, $p < .001$, $\eta p^2 = .268$, and the interaction, $F(3, 106) = 7.002$, $p < .001$, $\eta p^2 = .165$, but not for Group, $F(3, 106) = .769$, $p = .514$. Since significant multivariate tests emerged, it was decided to examine the univariate test results.

MSPSS. As shown in Table 2.1, relative to the Control group, participants in the Experimental group showed increases in MSPSS perceived social support scores from pre- to post-intervention.

Table 2.1

MSPSS Mean Scores and Standard Deviations from Pre- to Post-Intervention

<u>Group</u>	<u>$M_{pre-intervention}$</u>	<u>$SD_{pre-intervention}$</u>	<u>$M_{post-intervention}$</u>	<u>$SD_{post-intervention}$</u>
Control	63.55	14.33	63.24	14.84
Experimental	61.15	16.29	68.35	12.05

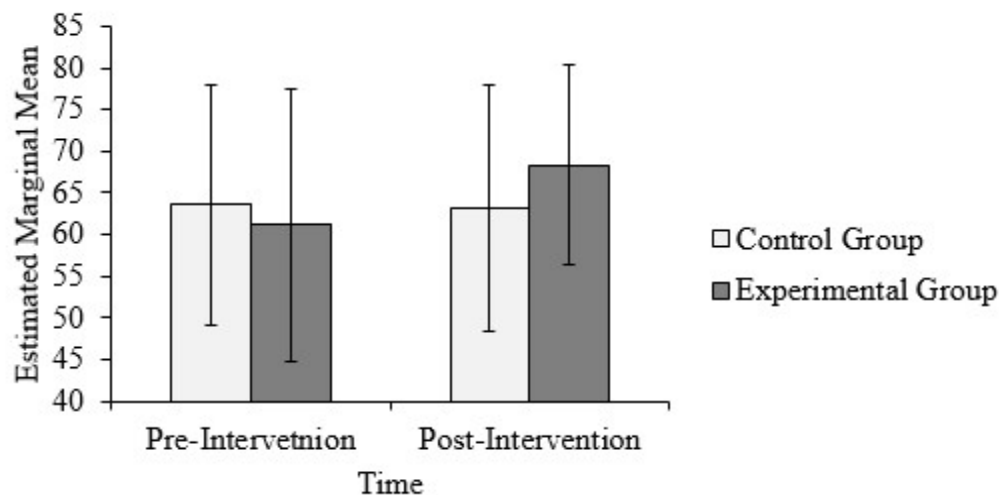


Figure 2.1. Estimated Marginal Means of MSPSS perceived social support scores by Time.

As seen in Figure 2.1, a repeated measures ANOVA on MSPSS scores revealed significant effects for Time, $F(1, 108) = 7.618, p = .007, \eta_p^2 = .07$, and the interaction, $F(1, 108) = 9.05, p = .003, \eta_p^2 = .08$, but not for Group, $F(1, 108) = .304, p = .583$. To further investigate the effect of the Time by Group interaction, paired t-tests were run separately for the Experimental and Control groups. These analyses revealed that the effect of the interaction was driven primarily by the Experimental group [Experimental group: $t(54) = -4.090, p < .001, \eta^2 = .24$; Control group: $t(54) = .175, p = .862$].

Also of note, participants who scored at least at the subthreshold depressive symptoms level (CESD-R score ≥ 16) at pre-test were more likely to have significant increases in MSPSS scores in the experimental group [$t(17) = -4.914, p < .001, \eta^2 = .59, M_{\text{pre}} = 58.83, M_{\text{post}} = 66.06$] than in the control group [$t(19) = 1.863, p = .078, M_{\text{pre}} = 62.40, M_{\text{post}} = 60.40$].

DIRI-RS. As shown in Table 2.2, relative to the Control group, participants in the Experimental group showed decreases in DIRI-RS reassurance seeking behaviours scores from pre- to post-intervention.

Table 2.2

DIRI-RS Mean Scores and Standard Deviations from pre- to post-intervention

<u>Group</u>	<u>$M_{\text{pre-intervention}}$</u>	<u>$SD_{\text{pre-intervention}}$</u>	<u>$M_{\text{post-intervention}}$</u>	<u>$SD_{\text{post-intervention}}$</u>
Control	11.00	5.67	10.58	6.04
Experimental	11.96	5.79	9.64	5.74

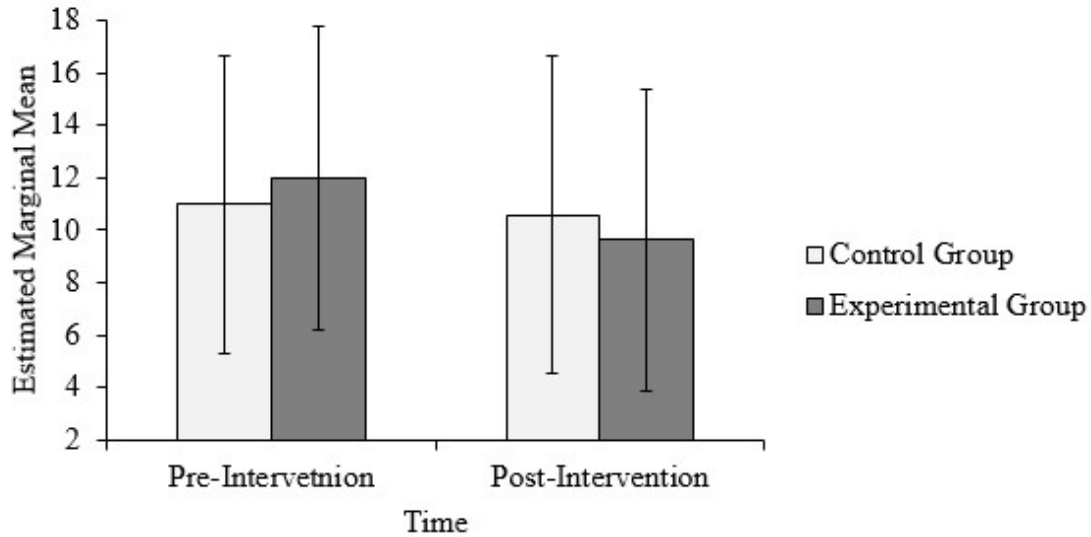


Figure 2.2. Estimated Marginal Means of DIRI-RS reassurance seeking scores by Time.

As seen in Figure 2.2, a repeated measures ANOVA on DIRI-RS scores revealed significant effects for Time, $F(1, 108) = 11.626, p = .001, \eta^2 = .10$, and the interaction, $F(1, 108) = 5.62, p = .02, \eta^2 = .05$, but not for Group, $F(1, 108) = .000, p = .993$. To further investigate the effect of the Time by Group interaction, repeated measures paired t-tests were run separately for the Experimental and Control groups. These analyses revealed that the effect of the interaction was driven primarily by the Experimental group [Experimental group: $t(54) = 4.137, p < .001, \eta^2 = .24$; Control group $t(54) = .726, p = .471$].

Also of note, participants who scored at least at the subthreshold depressive symptoms level (CESD-R score ≥ 16) at pre-test were more likely to have significant decreases in DIRI-RS scores in the experimental group [$t(17) = 2.066, p = .05, \eta^2 = .20, M_{\text{pre}} = 14.39, M_{\text{post}} = 12.33$] than in the control group [$t(19) = -.178, p = .861, M_{\text{pre}} = 12.40, M_{\text{post}} = 12.60$].

CESD-R. As shown in Table 2.3, relative to the Control group, participants in the Experimental group showed decreases in CESD-R depressive symptoms scores from pre- to post-intervention.

Table 2.3

CESD-R Mean Scores and Standard Deviations from pre- to post-intervention

Group	$M_{pre-intervention}$	$SD_{pre-intervention}$	$M_{post-intervention}$	$SD_{post-intervention}$
Control	14.65	11.86	13.73	12.16
Experimental	13.35	10.54	9.36	7.58

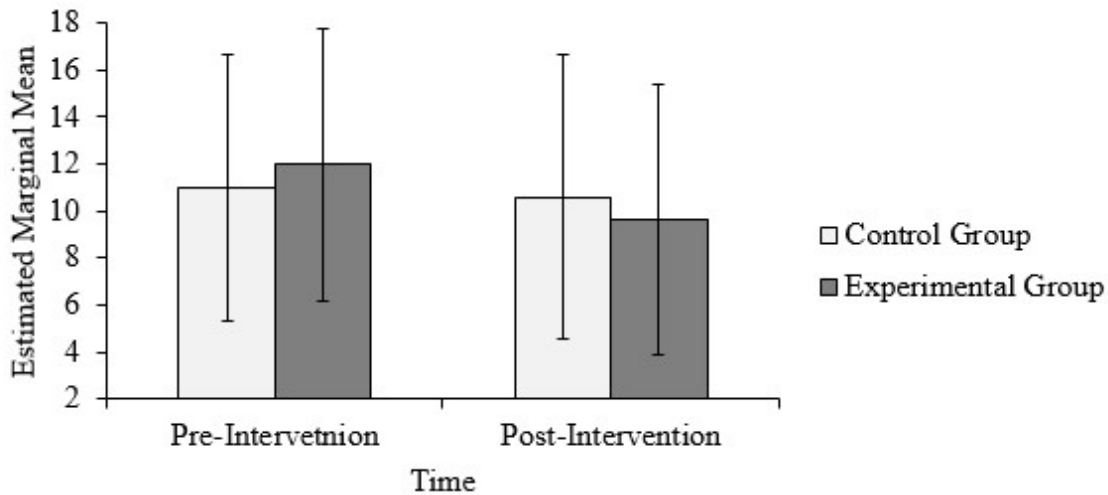


Figure 2.3. Estimated Marginal Means of CESD-R scores by Time

As seen in Figure 2.3, a repeated measures ANOVA on CESD-R scores revealed significant effects for Time, $F(1, 108) = 23.31, p < .001, \eta^2 = .18$ and the interaction $F(1, 108) = 9.024, p = .003, \eta^2 = .08$, but not for Group $F(1, 108) = 2.064, p = .154$. To further investigate the effect of the Time by Group interaction, repeated measures paired t-tests were run separately for the Experimental and Control groups. These analyses revealed that the effect of the interaction was driven primarily by the Experimental group [Experimental group: $t(54) = 5.553, p < .001, \eta^2 = .36$; Control group: $t(54) = 1.286, p = .204$].

Also of note, participants who scored at least at the subthreshold depressive symptoms level (CESD-R score ≥ 16) at pre-test were more likely to have significant decreases in CESD-R scores in the experimental group [$t(17) = -5.316, p < .001, \eta^2 = .62, M_{pre} = 25.39, M_{post} = 17.06$]

than in the control group [$t(19) = 1.331$, $p = .199$, $\eta^2 = .59$, $M_{\text{pre}} = 27.05$, $M_{\text{post}} = 24.80$]. This also demonstrates that those in the experimental group were more likely to go from well above subthreshold to almost meeting the subthreshold mark (i.e., 16)

What was different about the writing between groups?

Given that participants in the experimental condition, but not the control condition, experienced changes in perceived social support, reassurance seeking behaviours, and depressive symptoms, the second phase of analysis focused on assessing the differences in EW between these two groups.

Once each writing sample was analyzed using the selected LIWC categories, these daily LIWC values were aggregated across the days of writing to determine total group means for each category. Independent-samples t-tests were performed to determine if the groups were significantly dissimilar on LIWC categories. The groups differed significantly in total word count [$M_{\text{experimental}} = 184.80$, $M_{\text{control}} = 228.20$, $t(108) = -2.37$, $p = .02$] demonstrating that participants in the Control group tended to write more words than those in the Experimental group. The groups also differed in analytic writing style [$M_{\text{experimental}} = 31.65$, $M_{\text{control}} = 72.65$, $t(108) = -12.91$, $p < .001$], where participants in the Control group tended to write in a more analytic style, meaning that they wrote in less narrative and personal ways, and tended to write in a more formal or logical way (Pennebaker, Chung, Frazee, Lavergne, & Beaver, 2014). The groups also differed in authenticity [$M_{\text{experimental}} = 81.26$, $M_{\text{control}} = 92.05$, $t(108) = -5.63$, $p < .001$], with participants in the Control group scoring higher on this LIWC variable. However, it is important to note that since this summary variable is used to identify deception in writing (where scores below 50 indicate deception), both groups' writings would be identified as being authentic (Newman, Pennebaker, Berry, & Richards, 2003). The groups also differed in their

emotional tone [$M_{\text{experimental}} = 81.06$, $M_{\text{control}} = 44.19$, $t(108) = 13.25$, $p < .001$]. Participants in the Experimental group tended to write with a more positive emotional tone, and the Control group with a more negative emotional tone (as scores below 50 indicate negative emotional tone; Cohn, Mehl, & Pennebaker, 2004).

The two groups also differed significantly on most of the word categories, with the experimental group showing more use of words belonging to the different categories. Group differences are summarized in Table 2.4.

Table 2.4

Word category differences between Experimental and Control groups

<u>Word category</u>	<u>$M_{\text{experimental}}$</u>	<u>$SD_{\text{experimental}}$</u>	<u>M_{control}</u>	<u>SD_{control}</u>	<u>t-test ($df = 108$)</u>	<u>p-value</u>
Affect	7.60	1.86	2.23	1.47	16.81	< .001
Positive Emotion	5.93	1.65	1.60	1.14	16.02	< .001
Negative Emotion	1.52	.85	.58	.45	7.22	< .001
Anxiety	.58	.45	.13	.16	6.94	< .001
Anger	.29	.35	.09	.14	4.00	< .001
Sadness	.31	.29	.12	.15	4.46	< .001
Social	11.95	2.95	6.11	2.15	11.88	< .001
Family	.79	.74	.62	.62	1.29	.199
Friend	1.17	.76	.84	.56	2.53	.013
Female	1.56	1.26	.62	.58	5.05	< .001
Male	.99	.98	.66	.68	2.08	.040
Insight	3.44	1.21	.91	.70	13.48	< .001

<u>Word category</u>	<u>$M_{experimental}$</u>	<u>$SD_{experimental}$</u>	<u>$M_{control}$</u>	<u>$SD_{control}$</u>	<u>t-test ($df=108$)</u>	<u>p-value</u>
Cause	2.34	.75	1.09	.39	11.02	< .001
Drive	8.99	2.06	8.34	2.01	1.68	.096
Affiliation	4.18	1.69	3.16	1.54	3.32	.001

What was the process of change in the experimental group?

Based on the results demonstrating that participants in the experimental group benefitted from the EW task (as indicated by increases in perceptions of social support, and decreases in both excessive reassurance seeking behaviours and depressive symptoms), compared to the control condition (i.e., Phase 1 of analysis) and that the experimental group differed significantly from the control group in terms of the linguistic components of their writing (i.e., Phase 2 of analysis), I then examined the potential process of change for the EW social support intervention. Specifically, in the third phase of analysis I examined which LIWC variables were associated with change in social support, reassurance seeking behaviors, and depressive symptoms. Post-intervention scores and LIWC peak score variables (i.e., each participants' highest score on that LIWC variable across the four days of study) on the following LIWC variables: positive emotion words, negative emotion words, social words, family referent words, friend referent words, insight words, causal words, and affiliation words, were entered into step-wise regressions after controlling for pre-intervention scores on the same variable. Step-wise regressions were used because these were exploratory regression analyses. That is, there was no previous research I could use to inform which variables to include in the analyses as no previous studies had examined EW regarding social support.

EXPRESSIVE WRITING AND PERCEIVED SOCIAL SUPPORT

Table 2.5

Inter-correlations between pre- and post-intervention scores and LIWC variables in the experimental group

	<u>CESD-R</u> <u>Pre</u>	<u>CESD-R</u> <u>Post</u>	<u>MSPSS</u> <u>Pre</u>	<u>MSPSS</u> <u>Post</u>	<u>DIRI-RS</u> <u>Pre</u>	<u>DIRI-RS</u> <u>Post</u>	<u>Pos</u> <u>Emo</u>	<u>Neg</u> <u>Emo</u>	<u>Social</u>	<u>Family</u>	<u>Friend</u>	<u>Insight</u>	<u>Cause</u>	<u>Affil</u>
CESD-R Pre	1.00													
CESD-R Post	.878**	1.00												
MSPSS Pre	-.226	-.224	1.00											
MSPSS Post	-.263	-.314*	.611**	1.00										
DIRI-RS Pre	.369**	.413**	-.064	-.172	1.00									
DIRI-RS Post	.324*	.337*	-.026	-.087	.738**	1.00								
Pos_Emo	.102	.076	.027	.065	-.111	-.036	1.00							
Neg_Emo	.041	.044	-.041	.034	.239	.274*	.117	1.00						
Social	-.181	-.295*	.114	.015	.121	-.111	.021	-.159	1.00					
Family	.086	.196	.023	.047	.199	.122	-.045	-.213	.094	1.00				
Friend	-.181	-.271*	-.037	-.150	.051	-.019	.081	-.028	.566**	-.188	1.00			
Insight	-.053	-.061	-.239	-.160	-.092	-.108	.171	.302*	.000	-.252	.174	1.00		
Cause	.009	-.127	-.169	-.069	.092	-.109	.092	-.047	.397 **	-.010	.185	.061	1.00	
Affil	-.176	-.140	.116	-.042	.125	-.142	.136	-.169	.583 **	.357 **	.540 **	.022	.204	1.00

Note. * = $p < .05$, ** = $p < .01$.

EXPRESSIVE WRITING AND PERCEIVED SOCIAL SUPPORT

Correlations between pre- and post-intervention scores and LIWC peak score variables in the experimental group can be found in Table 2.5. Even though very few significant zero order correlations were found, I decided to continue in conducting the regression analyses based on past research findings indicating that positive and negative word use and the use of cause and insight words were related to positive outcomes (e.g., Boals, 2012; Frattaroli, 2006; Pennebaker & Chung, 2011). Additionally, social word categories (specifically social words, friend referent words, family referent words, and affiliation words) were included in the regression analyses due to the social support writing instructions. These word categories are also included in the correlation table.

MSPSS. Pre-intervention MSPSS scores accounted for 37.4% ($R^2_{change} = .374$) of the variance in post-intervention MSPSS scores, $F_{change}(1, 53) = 31.65, p < .001$. The step-wise linear regression demonstrated that after controlling for pre-intervention scores, no LIWC variables accounted for a significant amount of variance in post-intervention MSPSS scores.

DIRI-RS. Pre-intervention DIRI-RS scores accounted for 54.5% ($R^2_{change} = .545$) of the variance in post-intervention DIRI-RS scores, $F_{change}(1, 53) = 63.362, p < .001$. The step-wise linear regression demonstrated that affiliation words accounted for 5.6% ($R^2_{change} = .056$) of the variance in post-intervention DIRI-RS scores after controlling for pre-intervention scores, $F_{change}(1, 52) = 7.275, p = .009$. No other variables contributed significantly to the variance in post-intervention DIRI-RS scores after accounting for affiliation words.

CESD-R. Pre-intervention CESD-R scores accounted for 77.1% ($R^2_{change} = .771$) of the variance in post-intervention CESD-R, $F_{change}(1, 53) = 178.524, p < .001$. The step-wise linear regression demonstrated that social words accounted for 1.9% ($R^2_{change} = .019$) of the variance in post-intervention CESD-R scores after controlling for pre-intervention scores, $F_{change}(1, 52) =$

4.761, $p = .034$. After accounting for social words, family referent words accounted for 1.9% ($R^2_{change} = .019$) of the variance in post-intervention CESD-R scores, $F_{change}(1, 51) = 4.988$, $p = .030$. No other variables contributed significantly to the variance in post-intervention CESD-R scores after accounting for social and family referent words.

Discussion

To my knowledge, this is the first study to examine expressive writing focused on social support and its effect on perceived social support, excessive reassurance seeking, and depressive symptoms.

Was the intervention successful?

The results indicate that overall, the intervention was successful at increasing perceptions of social support and decreasing both excessive reassurance seeking behaviours and depressive symptoms. Consistent with earlier work, EW led to reductions in depressive symptoms (e.g., Baum & Rude, 2013; Gortner et al., 2006; Krpan et al., 2013) in the experimental group, as compared to control participants. This EW intervention, however, purposefully targeted perceptions of social support and interpersonal behavior (i.e., excessive reassurance seeking), by asking participants to specifically write about instances of received support. Compared to those assigned to the control condition, the participants in the EW group showed significant increases in perceptions of social support as well as decreases in excessive reassurance seeking and depressive symptoms. Also of note, the intervention effects for perceptions of social support and depressive symptoms were found to be stronger for participants who scored at least at the subthreshold level of depressive symptoms, providing preliminary evidence that this intervention may be effective in a more depressed sample. These results fit well with the social integration theory of EW, which states that individuals who disclose emotions through writing are likely to

become more open to talk freely with others about their experiences and stressful topics (e.g., Frattaroli, 2006). It is therefore plausible that participants, as a result of the writing manipulation, relied more on their social supports between writing sessions, which in turn increased their perceptions of social support and decreased depressive symptoms, and excessive reassurance seeking behaviors over time.

Consistent with previous EW research, these changes were evident after a short intervention period (Frattaroli, 2006; Smyth & Pennebaker, 2008). In this study, the outcome measures were impacted by only four days of writing. Moreover, the results provide evidence that EW interventions can, as was hypothesized, be tailored to target specific vulnerability factors, such as perceived social support. That is, the results provide additional evidence that EW interventions can move beyond the traditional focus on writing about stress to more nuanced foci. This finding is similar to a previous study where an EW intervention was adapted for kidney transplant recipients, who were instructed to write specifically about the kidney transplant itself rather than writing about stress (Possemato, Ouimette, & Geller, 2010). This has particular implications for areas in which EW has not been shown to be effective, such as in individuals diagnosed with post-traumatic stress disorder (PTSD; e.g., Gidron, Duncan et al., 2002; Gidron, Peri, et al., 1996; Sloan et al., 2011), or individuals grieving the loss of a loved one (e.g., O'Connor et al., 2003; Range et al., 2000; Stroebe et al., 2002). Perhaps with more tailored and focused writing tasks, these individuals could address their issues more directly, and thus find EW to be more effective. Future research should examine this possibility.

What was different about the writing between groups?

Similar to past studies, compared to the control group, the EW group showed more use of emotion words (both positive and negative), causal words, and insight words (e.g., Baum &

Rude, 2013; North et al., 2012; Pennebaker & Chung, 2011). That is, participants in the EW group were more likely to write with an emotional tone, as well as show more cognitive processing within their writing. Most relevant for an assessment of the EW intervention aimed at impacting perceived social support and reassurance seeking, participants in the EW group also used more social words and affiliation words. These variables are made up of words referring to others within a social network, as well as words that indicate a drive for social connectedness. This indicates that the EW task designed to target specific variables (i.e., social connections and interpersonal behaviors) was effective at doing so. It should be noted, however, that the affiliation words category utilized in this study is a new variable in the most recent LIWC version (LIWC 2015; Pennebaker et al., 2015). Therefore, it is not possible to evaluate whether previous EW interventions might also impact affiliation or if this finding is unique to a social support-focused EW task.

Interestingly, although the control and EW groups differed on overall social words, as well as the social word categories of friend referent words, female referent words, and male referent words, there was no significant difference between groups in their use of family referent words. Manual review of the EW samples indicated that participants in the control condition frequently described their daily activities chronologically, in their writing. Given that data was collected from a primarily commuter institution (i.e., a large proportion of students are local, live at home, and commute to school) where students are often still living with their family of origin, this finding is not necessarily surprising. For example, many control participants' days included interactions with family members (e.g., "I woke up and I went and said 'good morning' to my family", "My grandparents then came over for a family dinner with both sets of grandparents").

What was the process of change in the experimental group?

The last goal was to examine what linguistic markers, via the LIWC, predicted change in perceived social support, reassurance seeking, and depressive symptoms for our experimental EW group. The analyses focused on peak LIWC scores by selecting, for each participant, their highest score on each LIWC variable from across the four days of study. No peak LIWC scores impacted post-intervention perceived social support scores. This is surprising, given the overall significant effect of our social support-focused EW intervention on perceived social support scores in our experimental group. That is, this study indicates that social support-focused EW can increase perceived social support but it is unclear, linguistically, *how* this intervention achieves this result. Although one must be cautious in interpreting a null result, it is possible that the treatment effect is primarily driven by changes in depressive symptoms. For example, use of social and family referent words predicts decreases in depressive symptoms, which in turn might increase perceived social support. If this is the case, it would bring into question the utility of focusing on social support in EW interventions, as opposed to using the standard EW intervention, which also decreases depressive symptoms. Unfortunately, it is not possible for us to address this question with our data.

Affiliation scores were predictive of post-intervention excessive reassurance seeking scores. This indicated that higher peak levels of word patterns related to a drive to connect with others predicted lower reassurance seeking scores at the end of the intervention. As previously mentioned, low perceptions of social support can cause uncertainty about one's relationship to supportive others. Some individuals, particularly those prone to depressive symptoms, attempt to resolve this uncertainty by seeking reassurance from others that they truly are supported (i.e., excessive reassurance seeking). Previous research indicates that this drive to receive support is

associated with maladaptive outcomes (Timmons & Joiner, 2008), but in this intervention, a drive to affiliate was associated with positive outcomes. When asked to reflect on social support, via the EW task, it seems possible that participants' daily reflections provided their desired reassurance of social connection and social support, which might have negated the need to seek this reassurance in a behaviorally maladaptive way. That is, the EW task itself possibly provided the reassurance needed.

It was also found that the use of social and family referent words predicted lower post-intervention depressive symptoms. This is consistent with the large body of previous literature that shows social connection and social support are negatively related to depression (e.g., Khatlib et al., 2013; Lakey & Cronin, 2008; Zimmer & Chen, 2012), and that higher support buffers against depressive symptoms (e.g., Bozo et al., 2009; Lakey & Cronin, 2008; Petit et al., 2011; Zimmer & Chen, 2012). It is also consistent with previous research indicating that use of family words and words referencing other individuals, as measured in autobiographies, predicts longer lifespan (Pressman & Cohen, 2007). This lends evidence to support the idea that writing about social support, where participants are provided with an intervention aimed at maximizing the discussion of social experiences and family, can be an effective intervention for depressive symptoms. Moreover, our intervention was delivered in an online format, is free, non-invasive, requires little time investment, and can be done independently, which would allow a large number of individuals to access it.

Study Strengths and Limitations

The main strength of this study is the use of the novel social support writing instructions, designed to target specific vulnerability to depression factors. The social support writing instructions take into consideration the fact that individuals with depression are more likely to

have low perceptions of social support, and make this intervention more directly connected to depression treatment. This intervention was conducted online, requiring no face to face contact. This method of delivery means that a large number of people could have easy access to such an EW intervention, closing the gap for individuals who may not otherwise have access to, or seek, interventions for depression. The fact that this intervention is quite brief also allows for more people to access it, as it is time-efficient, and non-invasive.

Although the results of this study are promising, there are some limitations. The sample was from an undergraduate student population, and thus the results are not generalizable to those with a clinical diagnosis and/or severe levels of depression. However, the study of college or university samples is still merited given that these individuals are at least as likely to suffer from mental health issues as the general population. For example, over a number of studies, the rate of depression among college and university students has been estimated to be between 13-17.3% (Blanco et al., 2008; Eisenberg et al., 2013; Hunt & Eisenberg, 2010; Soet & Sevig, 2006; Zivin et al., 2009) compared to 7% in the general population (APA, 2013). Furthermore, college students are likely to have disruptions to social networks during this developmental period, experience high levels of stress (a risk factor for depression), and can experience academic difficulties as a result of depressive symptoms. Accessible interventions for this population are important.

A second limitation is that although the results established that the intervention led to statistically significant increases in perceptions of social support, and decreases in excessive reassurance seeking and depressive symptoms, it is unknown whether these changes would be considered to be clinically significant or reliable changes. Clinically significant change indicates that the level of functioning after treatment is closer to the mean of the non-clinical population

than the mean of the clinical population (Evans, Margison, & Barkham, 1998; Jacobson & Traux, 1991). Researchers argue that the clinically significant change associated with an intervention is important because this helps to establish whether changes observed in study participants are clinically meaningful. In other words, clinically significant change indicates change that is observable by the self and others, that denotes a return to normal functioning, or that is a significant reduction in the problem symptoms (Evans et al., 1998; Jacobson & Traux, 1991; Ronk, Hooke, & Page, 2016). Reliable change is change that falls beyond the range that could be attributed to the measurement variability of the instrument used (Evans et al., 1998) and is argued to be important because it is a measure of change that is likely not to be due to measurement error (Evans et al., 1998; Jacobson & Traux, 1991). In contrast, some researchers argue that statistically significant change on its own is not clinically relevant because statistical effects or effects do not necessarily translate into the efficacy of an intervention. In other words, statistical significance can occur due to measurement error, low variability within groups studied, or many other reasons (Evans et al., 1998; Jacobson & Traux, 1991).

Unfortunately, there is not enough information available on the measures used to calculate these changes. For example, calculating clinically significant change requires clinical population and non-clinical population means and standard deviations from published data and calculating reliable change requires clinical population standard deviation from published data. Without this information, it could be argued that my intervention may not have produced change in participants that is clinically meaningful, or reliable beyond measurement error. In spite of this, it is important to note that the effect sizes of the intervention in the experimental group were found to be “large” for all three outcomes (Specifically; for social support (as measured by the MSPSS), $\eta^2 = .24$; for excessive reassurance seeking behaviours (as measured by the DIRI-RS),

$\eta^2 = .24$; and for depressive symptoms (as measured by the CESD-R), $\eta^2 = .36$; which are all above the .14 used to identify large effect sizes by Cohen (1988), which gives some indication that the effect is larger than would be expected by chance, which indicates that these results are meaningful. These findings contrast with the finding in the most recent meta-analysis on the effects of expressive writing on depressive symptoms (Reinhold et al., 2018), which found that the effect size of the impact of expressive writing on depression did not significantly differ from zero. One recently published study on the effect of EW on depressive symptoms demonstrated that EW led to clinically significant reductions in depressive symptoms (Kıran et al., 2013). Other studies have found that EW led to clinically meaningful reductions in: depressive symptoms (Sloan & Marx, 2004), trauma symptoms and general stress levels (Hirai et al., 2012), and asthma and rheumatoid arthritis severity (Smyth et al., 1999).

Although attrition rates in this study were relatively low, with only 7 (6.0%) participants not completing the study, a third limitation is that these participants simply ceased writing or did not complete their post-intervention measures and did not respond to follow-up e-mails, therefore it is unknown why they discontinued. Knowing why participants did not complete the study is important as this may help inform future online interventions. Therefore, future research should attempt to keep in closer contact with participants to try to understand why attrition occurs.

A fourth limitation is that participants in this study had only subclinical levels of depressive symptoms, again meaning that the results are not generalizable to those with a clinical diagnosis and/or severe levels of depression. Nevertheless, it is important to note that even subclinical levels of depression and minor depressive symptomatology have been associated with negative outcomes. In fact, a number of studies have demonstrated that in many cases it is

difficult to separate out the negative effects of depression meeting diagnostic criteria, from the effects of subclinical forms (e.g., Ayuso-Mateos et al., 2010; Cuijpers & Smit, 2002). Despite this, individuals with subclinical levels of depression are less likely to seek, be referred for, or to receive treatment (Hoek, 2012; McClure et al., 1997). Additionally, symptoms are less likely to be noticed by others, and therefore, individuals who experience symptoms at this level are also less likely to receive external support with regards to their symptoms (McClure et al., 1997; Mehl, 2006), which has important implications for our variables of study (e.g., perceived social support). These considerations have led some to argue that the effects of subclinical depression are at least as serious as the effects of depression at diagnosable levels (e.g., Ayuso-Mateos et al., 2010; Cuijpers & Smit, 2002, 2008; Cukrowicz et al., 2011; Rivas Rodríguez et al., 2012).

A fifth limitation is the lack of follow-up measures. This means that we do not know if the intervention effects would endure beyond post-intervention. Many behavioural intervention studies measure outcomes only once at post-intervention, and do not examine effects at long-term follow-up (Allcott & Rogers, 2012). However, there are studies that have examined long-term effects of interventions, and many demonstrate that there is a rapid decay of treatment effects. For example, in smoking cessation and weight loss studies, participants often show a demonstrated effect at post-treatment, but these effects often disappear at long-term follow-up, meaning that individuals in these studies regain weight or begin smoking again (e.g., Cahill & Perera, 2011; John et al., 2011). That being said, there are studies that have shown long-term effects post intervention. For example, cognitive behavioural therapy has been shown to have enduring treatment effects for both depression and anxiety disorders, meaning that even after treatment has ended, individuals are at reduced risk for symptom return (e.g., Hollon, Stewart, & Strunk, 2006). Within the EW literature, treatment effects have been shown to last as long as six

months post-intervention. For example, in three of the four EW studies on depression, treatment effects lasted between four weeks and six months post intervention, meaning that experimental group participants still had lower depressive symptoms compared to control participants at follow-up (e.g., Baum & Rude, 2013; Gortner et al., 2006; Krpan et al., 2013). These results suggest that the results of the present study may have lasting power as well.

A sixth limitation is that depressive symptom scores were used as a categorical measure to determine if those above the subclinical threshold had different treatment results than those below the threshold. This was done instead of using depressive symptom scores as a continuous measure. Although this was done to ease interpretation of the results, dichotomizing a continuous variable also has its limitations. For example, because variability is reduced significantly, power is decreased, and the risk of a false negative result increases. Additionally, individuals whose scores are close to each other but on opposite sides of the cut-off point are characterized as being different as opposed to being similar (Altman & Royston, 2006). Despite these limitations, other researchers have also used this cut-off point in the past to compare those who scored at or above the threshold to those who scored below the threshold (e.g., Poleschuck, Talbot, Moynihan, Chapman, & Heffner, 2013; Rethorst, Moynihan, Lyness, Heffner, & Chapman, 2011), and it was important for the current research to compare those at or above the subclinical threshold for depressive symptoms to those below the threshold.

Implications and Future Directions

The results of this study are promising. They demonstrate that after writing about social support for only four days, for only 10 minutes per day, participants in the experimental group had significant increases in perceived social support, significant reductions in excessive reassurance seeking, and significant reductions in depressive symptoms. Being that these results

were found in a primarily non-depressed sample, this form of EW may hold promise as a preventative measure against future depressive symptoms.

One potential alternative explanation for the results is that the increases in perceived social support, and decreases in both excessive reassurance seeking and depressive symptoms were brought about by the induction of a positive mood brought on by the writing. It is possible that when participants wrote about instances of social support, they were put into a more positive mood state, which influenced how they completed the post-intervention measures.

Given this brief EW intervention focused on social support had significant effects on perceptions of social support, excessive reassurance seeking, and depressive symptoms in a non-clinical sample, future studies should investigate the effectiveness of this intervention in a clinical sample to see if the results are generalizable to those with more severe depressive symptoms. If this intervention is found to be effective in those with a diagnosis of major depression, it would have important treatment implications given that it is time- and cost-efficient, and would be easily accessible to a large number of individuals.

Some studies (e.g., Davila, 2001; Evraire & Dozois, 2014; Shaver, Schachner, & Mikulincer, 2005; Vogel & Wei, 2005) have delineated a relationship between Coyne's (1976a) interpersonal theory of depression and anxious attachment from Bowlby's (1969, 1973, 1980) attachment theory. Individuals with the anxious attachment style tend to have an intense desire for closeness, but also tend to doubt others' responsiveness and availability (Moreira et al., 2003). In other words, although individuals with anxious attachment report a high need for support from others, they also tend to perceive support as less available, and are less likely than others to be satisfied with the support that they receive (e.g., Campbell, Simpson, Boldry, & Kashy, 2005; Collins & Feeney, 2004; Rholes, Simpson, Campbell, & Grich, 2001), similar to individuals

described by Coyne's interpersonal theory of depression. Both theories describe individuals who lack confidence in themselves and their supports, and who have an increased need for support and reassurance from others, which then leads to increased reassurance seeking behaviours. This increase in reassurance seeking can then lead to interpersonal rejection when supports tire of the constant reassurance seeking (Mikulincer & Shaver, 2009). Additionally, research has demonstrated a relationship between anxious attachment and perceptions of social support, wherein increased levels of attachment anxiety are predictive of lower levels of perceived social support (e.g., Martin, Paetzold, & Rholes, 2010; Woodward et al., 2013). Although attachment styles are generally viewed as being stable over time, there is research evidence that they can change over time, with some longitudinal research demonstrating that between 30-40% of adults' attachment styles change (e.g., Cozzarelli, Karafa, Collins, & Tagler, 2003; Green, Furrer, & McAllister, 2011). Relatedly, there is some research evidence demonstrating that as perceptions of social support increase, attachment anxiety decreases (Cozzarelli et al., 2003; Green et al., 2011). Therefore, future studies should assess attachment style in addition to measuring perceived social support, excessive reassurance seeking, and depressive symptoms to monitor if changes in anxious attachment occur alongside changes in perceptions of social support.

Future studies should also utilize follow-up measures to determine if the intervention has lasting effects. Specifically, future studies should measure perceived social support, excessive reassurance seeking, and depressive symptoms using the same measures utilized in this study at follow-up time points to determine if the experimental group participants continue to exhibit increased perceived social support, decreased excessive reassurance seeking, and decreased depressive symptoms compared to control group participants in the long-term. Ideally, future studies would utilize multiple follow-up time points (i.e., four weeks, eight weeks, and six

months) to determine how long the treatment effects last post intervention. It is important to establish how long treatment effects last to help determine the potential of this EW task as an intervention for depression. If it is only effective at post intervention, with no lasting effects, it would have much less potential benefit for users.

This was the first study to examine expressive writing focused on social support, and its effect on perceived social support, excessive reassurance seeking, and depression. The results of this preliminary trial suggest that this form of EW intervention may hold promise in supplementing existing interventions for depression. Due to the study findings and limitations, further investigation is warranted.

Chapter 3: Study 2

Expressive Writing (EW) is a technique pioneered by James Pennebaker and colleagues in the mid-1980s. Typically, participants are randomly assigned to two or more groups where they are instructed to write about assigned topics for 10 to 30 minutes each day for three to five consecutive days. Participants in the experimental condition(s) are typically asked to write about their deepest thoughts and emotions regarding a traumatic or upsetting experience, whereas those in the control group are asked to write about mundane or trivial topics such as describing a room in their house (Pennebaker, 1997; Pennebaker & Beall, 1986; Smyth & Pennebaker, 2008).

As reviewed in the General Introduction, a large body of research literature has documented a number of physical and psychological benefits associated with EW. For example, it has been demonstrated to improve immune functioning (e.g., Pennebaker et al., 1988; Petrie et al., 1995; Petrie et al., 2004), decrease blood pressure (e.g., McGuire et al., 2005; Willmott et al., 2011), increase positive affect (e.g., Burton & King, 2004, 2009; Kirk et al., 2011; Lewandowski, 2009; North et al., 2011; Poon & Danoff-Burg, 2011; Schutte et al., 2012), and decrease negative affect (e.g., Burton & King, 2009; Mosher & Danoff-Burg, 2006; North et al., 2011; Páez et al., 1999; Pennebaker et al., 1988). Given its effectiveness in impacting both physical and psychological outcomes, it is important to consider its advantages over traditional psychotherapeutic interventions. Specifically, it can be delivered at minimal cost, is non-invasive, and can be done without the involvement of a therapist. Additionally, the majority of participants report finding the writing to be a positive experience (Frattaroli, 2006; Pennebaker, 1997; Pennebaker & Chung, 2011).

Expressive Writing, Depression, and Perceived Social Support

Major depressive disorder is characterized by a variety of cognitive, behavioral, and physical symptoms, including pervasive low mood, a reduced interest in typically enjoyable activities, and a decreased experience of pleasure. Other symptoms include difficulty concentrating, feelings of worthlessness or guilt, recurrent thoughts of death, insomnia or hypersomnia, changes in appetite, or weight, and loss of energy or fatigue (American Psychiatric Association [APA], 2013). Depression affects millions of people and is a major cause of disability worldwide (Kessler et al., 2003; Weissman et al., 1996; WHO, 2008).

Despite depression's many negative effects, many who experience it do not seek or receive treatment (e.g., Corrigan, 2004; Layous et al., 2011). For example, it estimated that in the United States and Canada only 30-40% of individuals with reported depression seek or receive treatment (Corrigan, 2004; Kessler et al., 2001; Layous et al., 2011; Mood Disorders Society of Canada, 2010; National Institute of Mental Health, 2004; Reiger et al., 1993). These estimates are alarming and suggest that between 60-70% of individuals with depression do not seek or receive treatment. One reason for these low estimated rates of treatment is that traditional psychotherapeutic interventions are typically quite costly. Given the alarmingly low rates of treated individuals, and the cost of traditional psychotherapeutic interventions, it is vital that alternatives to psychotherapy be explored. One potential alternative is EW, which can be done independently of a therapist and in the privacy of one's own home when delivered in an online format.

As of the writing of this paper, there have been five studies that have examined EW as an intervention for depression, including the first study of this dissertation. Four of the five studies utilized the standard writing instructions, with one study also including a positive writing

condition (Baikie et al., 2012; Baum & Rude, 2013; Gortner et al., 2006; Krpan et al., 2013). The fifth study utilized writing instructions that focused on social support (Saint & Cummings, under review). One study did not find a specific effect for EW, with all three writing conditions (i.e., experimental, positive writing condition, control) showing significant improvements in mental and physical health outcomes (Baikie et al., 2012). Conversely, the other four studies found that EW was associated with a significant reduction in depressive symptoms (Baum & Rude, 2013; Gortner et al., 2006; Krpan et al., 2013; Saint & Cummings, under review).

One limitation to most interventions for depression is that they focus on symptoms themselves rather than vulnerability factors. This focus prevents many interventions from treating the underlying problems that lead to depressive symptoms, which may lead to relapse after treatment ends. One potential target for intervention, based on Coyne's interpersonal theory of depression (1976a), is perceived social support.

Perceived social support can be defined as an individual's subjective impression of whether their social network is supportive enough (Cobb, 1976). According to Coyne's (1976a) interpersonal theory of depression, low perceptions of social support lead to a lack of confidence in one's social network and in the self, which subsequently leads to an increase in depressive symptoms. Since the introduction of this theory, a number of researchers have examined the relationship between depression and perceived social support. Longitudinal studies have established a relationship wherein low perceptions of social support are predictive of increases in depressive symptoms (e.g., Bozo et al., 2009; Khatlib et al., 2013; Skipstein et al., 2012; Zimmer & Chen, 2012), and high perceptions of social support are protective against the development of later depressive symptoms (e.g., Bozo et al., 2009; Lakey & Cronin, 2008; Petit et al., 2011; Zimmer & Chen, 2012).

As previously mentioned, the writing instructions of my project have a significant advantage over the standard writing instructions utilized in the previous four studies. In particular, they take the interpersonal context of depression into account, specifically targeting perceived social support by asking participants to write about this topic. This was done to ascertain if a *targeted* EW intervention would be effective at increasing perceptions of social support, reducing excessive reassurance seeking, and reducing depressive symptoms, which was found to be supported.

Advantages to Qualitatively Studying EW

One major disadvantage of conducting only quantitative research is that it limits the ability to explore subjective experiences of participants. Qualitative research on the other hand emphasizes the viewpoints of the subjective, and focuses on subjective opinions, attitudes, beliefs, and perspectives which cannot be measured solely in the numerical sense (Flick, 2009; Percy, Kostere, & Kostere, 2015). In other words, its aim is to gain an understanding of how individuals make sense of the world and how they experience phenomena. As opposed to working with variables that are defined by researchers before the research process begins, qualitative research focuses on the meanings attributed to events by research participants themselves (Cassell & Symon, 2011; Onwuegbuzie & Leech, 2005; Tetnowski & Damico, 2001; Willig, 2001). Qualitative research is often used to look at issues more in-depth than quantitative studies are able to, and to study phenomena which are simply not accessible using quantitative methods (Gough & Lyons, 2011; Griffin, 2004; Onwuegbuzie & Leech, 2005; Silverman, 2006). For example, qualitative research methods allow for the analysis of interview data, which is simply too complex to be transformed into numbers (Polkinghorne, 2005). Content analysis is a specific form of qualitative inquiry which allows for data to be analyzed using an inductive

approach, meaning that the analysis is data-driven and does not attempt to fit the data into any predefined categories (Hsieh & Shannon, 2005; Mayring, 2000). In terms of EW research, few previous studies have examined participant opinions and views of the writing using qualitative methods, therefore, this is an important step in gaining an understanding of how participants conceptualize the writing itself as well as understanding outcomes related to the writing.

Although some past studies have collected participant feedback on the EW task (e.g., whether or not they found the writing to be helpful; Frattaroli, 2006), few have focused more deeply on participant perspectives on EW. Therefore, in order to gain an understanding of how participants conceptualize EW, it is important that such a qualitative study on the process of EW and outcomes related to EW be conducted. Additionally, conducting a qualitative analysis on interviews with participants may provide some insight as to how EW works. The current study utilized content analysis to analyze interview data from participants about their experiences of EW.

Current Study

In Study 1, it was determined that a social support-focused EW intervention can increase perceptions of social support and decrease excessive reassurance seeking and depressive symptoms. Therefore, I established that a targeted EW intervention (i.e., for perceived social support) can work. Using a new sample, the current study was designed as a follow-up to that study, and was focused on evaluating participant's own perspectives of a targeted EW intervention. Participants were asked to write daily for four consecutive days about any instances of social support they received for 10 minutes each day. After the participants completed the writing task, I interviewed them to gain an understanding of their experience of writing about social support. Interview data was then analyzed using content analysis (Hsieh & Shannon, 2005;

Mayring, 2000). Although past EW research has collected some participant feedback on their experience of the EW task (e.g., whether or not they found the writing to be helpful; Frattaroli, 2006), this was the first substantive effort to collect and analyze information on participant views of a focused EW task. I specifically focused on analyzing two aspects of the EW experience: (1) How participants perceived the *process* of EW (i.e., how participants see the actual process of writing in and of itself); and (2) how the EW intervention impacted participants' views of social support (i.e., what outcomes participants might have experienced as a result of engaging in the EW task).

Method

Participants

Participants were thirteen undergraduate students from the University of Saskatchewan, recruited from the psychology department participant pool, using the SONA system, which allows students to sign up for and participate in psychological studies in exchange for credits (percentage points) which can be added to their final grades. For completing this study, participants were granted two bonus credits. These participants were recruited separately from Study 1 participants and did not participate in Study 1. Three participants dropped out before completing the interview portion of the study, leaving a total sample of 10 participants. I am unsure why these participants did not participate in the interview portion of the study as I was unable to contact them to follow up. All participants were women and ranged in age from 18 to 31 ($M = 21.30$), nine participants self-reported as European-Canadian, and one as Indigenous. All 10 participants completed all four days of writing, and therefore no data was dropped from the analysis.

Procedure

Participants were e-mailed a link to complete informed consent and a brief demographics questionnaire online. Beginning the following day, for a total of four days, participants completed EW entries for 10 minutes each day. Participants were asked to write about specific instances of receiving social support from others in an online diary. If they could not recall any examples from the current day, they were asked to recall a specific instance from the past to write about. They were asked to write about any instances of social support, from something as small as someone asking them how they were doing, to something as big as someone comforting them when they were distressed. Participants were instructed to explore their deepest thoughts and feelings around being supported (For a copy of the writing instructions see Appendix D).

Three days after completing the four days of writing, participants were interviewed in person by the researcher about their experience of writing about social support. During the interview, they were asked to explain in as much detail as possible, their perspective on the EW task. They were also asked about changes in gratitude for their social support, changes in perspective or opinion about social support, and whether they intended to continue this practice of writing after the study ended (For a copy of the interview questions see Appendix F).

Analysis

The data collected from these interviews were analyzed using content analysis, which is a form of qualitative analysis (Hsieh & Shannon, 2005; Mayring, 2000). One of the key features of content analysis is that it offers a very flexible approach to data analysis, since it can be applied in an inductive manner, allowing the researcher to draw themes and categories from the data as opposed to searching for data that fits into pre-defined categories. Content analysis involves the identification, analysis, and reporting of categories within complete sets of data. At a minimum,

it is used to organize and describe data sets in great detail, although it can also be utilized to interpret various aspects of the chosen research topic (Hsieh & Shannon, 2005; Mayring, 2000).

As with any form of qualitative analysis, it is important that the researcher become “immersed” in the data (Hsieh & Shannon, 2005; Mayring, 2000). For this study, after each interview was completed, I transcribed the audio recording as soon as possible. This allows the researcher to become intimately familiar with the content of each interview. It is essential that initial thoughts and reactions to the data, and any emergent codes or themes be written down at this stage. I transcribed the interview data, and then both myself and my supervisor reviewed the transcripts and wrote down our initial thoughts, and discussed what we noticed together.

The next stage in the analytic process was coding, where simple labels were generated to identify important features in the data. This process also entailed collating all of the codes and relevant data extracts, which allowed for an easier search for themes or categories (Hsieh & Shannon, 2005). At this stage I coded the data using NVivo. A total of 260 unique codes were identified in the transcripts, with some codes containing multiple references within the data.

The next stage involves sorting the codes into categories, for the current study, codes were sorted into different themes. Themes are more meaningful and coherent patterns found in the data related to the research questions, and are made up of groups of codes. Essentially, this process involves grouping codes to identify similarities in the data. This phase ended with the collation of all of the data relevant to each theme. At this stage I discovered that there were two groups of themes that did not seem to fit together, hence the groups of themes were divided into two separate content analyses. One focused on themes related to the process of the writing task, whereas the other analysis focused on themes related to outcomes brought about due to the writing task. At this stage, 20 codes were initially sorted into a miscellaneous theme and were

later reviewed and placed into other existing themes. However, some codes within the process of writing analysis remained in a miscellaneous category.

Next, the themes were reviewed to help in determining if themes should be combined or sorted into sub-themes. During this phase, my supervisor and I collaborated in the development of the themes. Specific rules were developed to help organize codes into themes. A total of four rules were developed. For example, it was decided that codes could only belong to one theme. Other rules included that there could be sub-themes, that codes must belong to one theme or another and not be left solely as codes, and that themes would be a collection of similar codes grouped together.

The next stage involved naming and defining the themes that were developed from the data. Each theme was analyzed and defined both in and of itself (e.g., “what is the main story of this theme?”), and within the whole data set (e.g., “How does the story of this theme fit into the overall story of the data?”). Themes were also named at this stage using concise and informative names for each.

The final stage involved writing up the results of the analytic process, and was integral to the whole analysis. At this stage exemplars of each theme were identified by the writer and selected to be included in the write-up. These exemplars are included in the following section. Additionally, relevant theories and research findings are discussed.

Results and Discussion

After initial analysis of the data, it was found that there were two overarching categories of codes, and therefore I conducted two separate content analyses, one focused on the process of writing itself and the other focused on outcomes that occurred due to the writing. This allowed

me to focus on two groups of themes that differed too much in content from one another to be grouped within the same content analysis.

Content Analysis 1: Process of Writing

The purpose of the first content analysis was to capture codes that related specifically to the process of writing. This meant that this content analysis focused on the process of writing itself, as opposed to outcomes brought about by the writing (For theme definitions see Appendix J, for a thematic map see Figure 5). This resulted in six themes related to the process of EW: a) time limit; b) comparing writing to thinking; c) difficulty of writing; d) reflection on day; e) writing as a positive experience; and f) miscellaneous.

Theme 1: Time limit. The first theme related to the process of writing covered participants' comments about the time limit. Seventy percent of the participants made comments about the time limit. Whereas some participants (40%) found the time limit restrictive (e.g., "I feel like 10 minutes isn't long enough to write about it when I did it. I felt like I could've kept writing", "like having a set amount of time to write and like writing kind of...makes it feel more forced I would say"), others (30%) found the time limit to be appropriate, and were surprised at how much they could accomplish within 10 minutes (e.g., "but yeah like the 10 minute time frame was pretty good", "I always think that I don't have enough time...and I realized how much I could get done in 10 minutes").

These findings demonstrate that the time limit in the EW task can feel restrictive to some participants or that some people simply need more time to think about what they want to write about. In a study on reflective journal writing Andrusyszyn and Davie (1997) also identified time as a common barrier to reflection in writing, with participants stating that often they did not have enough time to record their reflections in journal writing. This has important implications for

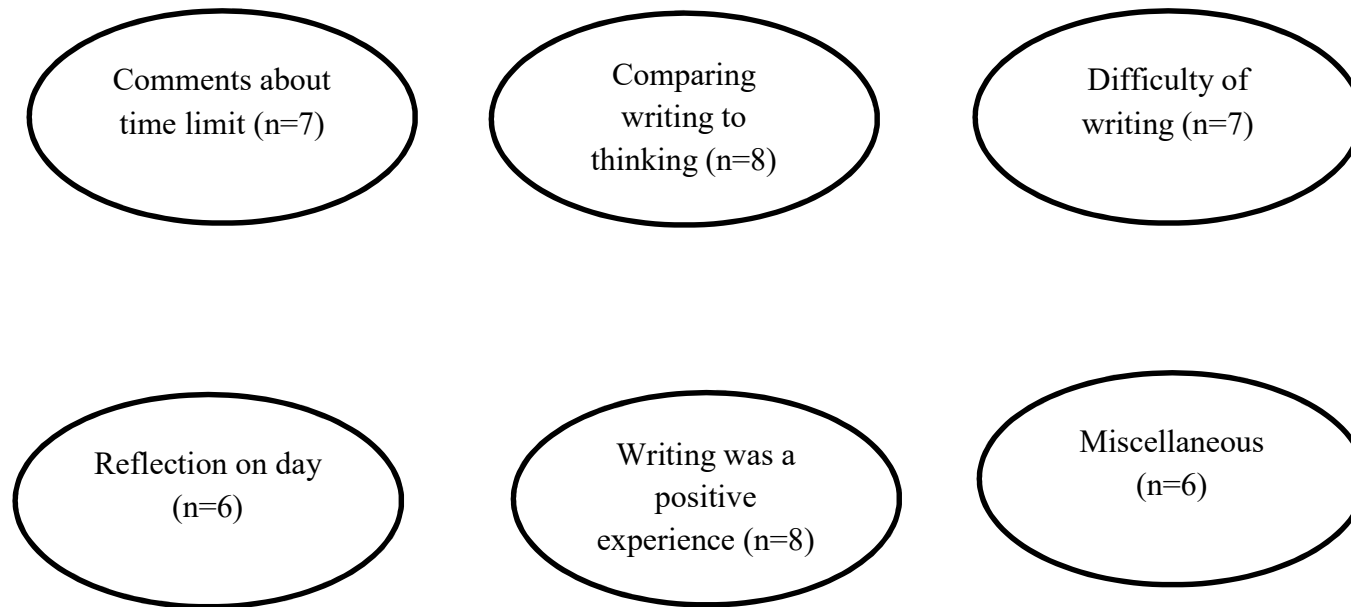


Figure 3.1. Process of Writing Thematic Map.

future research and for EW to be used as an intervention. The majority of EW studies have used either 10 or 15 minutes of writing as the standard (Frattaroli, 2006), however, it may be that instructions should allow participants time to think about what they want to write about before engaging in the writing process.

Theme 2: Comparing writing to thinking. The second theme that emerged from the data dealt with participants comparing writing to thinking/reflecting. Eighty percent of the participants compared writing to thinking. Some participants (20%) thought writing and thinking are equivalent in terms of effectiveness (e.g., “I think by thinking about it, you’re still recognizing it. Whether you put it in a journal or you think about it...so, I think that’s kinda the same thing”, “I feel like it’s just as effective for me to just think about it”), and others (60%) thought writing would be more beneficial than just thinking or reflecting on social support (e.g., “I do think writing would be more beneficial than thinking”, “I think that writing it down might be more beneficial in some ways, because then I’m forced to umm...sit down and think about it and...write about it, and I can just go back to it whenever I want. Umm...whereas thinking about it, over time...uh, certain things I might forget about more”).

These mixed participant views on whether or not writing is different than thinking reflects the state of the literature on this debate. Comments about writing being different than thinking were consistent with Vygotsky’s theory on writing, where he noted that inner thoughts are familiar and personal, whereas writing is elaborate, requiring detailed abstract thought (Everson, 1991). Additionally, researchers have suggested that writing promotes organization and structure to thoughts, and invites analysis and processing (e.g., Esterling, L’Abate, Murray, & Pennebaker, 1999; Lyubomirsky, Sousa, & Dickerhoof, 2006; Menary, 2007; Pennebaker & Chung, 2011). In contrast, thinking is said to be more disorganized or even chaotic compared to

writing (Esterling et al., 1999; Lyubomirsky et al., 2006). This would indicate that EW interventions may help individuals to organize and promote structure to their thoughts as they write.

However, private thoughts are not always described as disorganized, and in fact, more adaptive types of thinking tend to be more deliberate and systematic, being more analytical in nature, thus sharing features with the typical descriptions of writing (Lyubomirsky et al., 2006). Some argue that writing and thinking are synonymous, and that writing is a process of thinking, or that thinking is augmented by writing (Menary, 2007; Nardi, Schiano, Gumbrecht, & Swartz, 2004; Oatley & Djikic, 2008). Writing has also been described as “thinking in action”, meaning that the thoughts are not just remaining within the brain, but are put to action in the form of putting pen to paper or fingers to keyboard (Menary, 2007, p. 622; Oatley & Djikic, 2008). Both thinking and writing can provide opportunities for individuals to rehearse or replay events, thus allowing them to extend the positive effects of positive events (Lyubomirsky et al., 2006).

This contention that adaptive types of writing require deliberate, abstract thought and that writing invites analysis and processing, is consistent with the results of Study 1, which indicated that those in the experimental EW group used more cognitive processing words (namely causal and insight words), as compared to the control group. Furthermore, combined with the previously discussed Theme 1 regarding the time limit, my results indicate that some participants might require more time than others to adequately engage with these abstract thought processes.

Theme 3: Difficulty of writing. The third theme within the process of writing content analysis contained participants’ comments on the difficulty of writing. Seventy percent of the participants commented on the difficulty of the writing. Some (50%) noted that it was quite difficult for them to come up with things to write about (e.g., “I found it very hard to

umm...think of things to write down”, “it was difficult to think about things to write”), whereas others (20%) found the task easy to accomplish (e.g., “it was really easy to find something to write about each day”).

These findings demonstrate that, at least for some individuals, EW can be difficult. This is consistent with some past research that has examined the difficulty of writing conditions and has demonstrated that participants find EW to be more difficult as compared to control writing conditions (e.g., Batten, Follette, Rasmussen Hall, & Palm, 2002; Burton & King, 2004; Gallant & Lafreniere, 2003; Hoyt & Yeater, 2011; Johnston et al., 2010; Kearns et al., 2010, MacKenzie et al., 2007). This rating of difficulty by participants may reflect that the EW task simply requires more effort than control writing conditions. This makes sense as control writing topics are typically focused on mundane or trivial topics, whereas EW typically focuses on topics that are more personal and therefore more involved. Ryan (2011) also noted that reflective writing is complex and can be difficult for individuals who are not taught how to engage in it. Therefore, the EW task may be more difficult for some individuals as compared to the control writing task.

Theme 4: Reflection on day. The fourth theme within the first content analysis covered participants’ comments that the writing was a form of reflection on their day, and that this process of reflection was nice. Sixty percent of the participants noted that the writing allowed for reflection (e.g., “it’s good to have that reflection upon your day, and recognize what to be grateful for and who to be grateful for and why”, “I did like the reflection part of it. So...to reflect through writing yeah was nice and it was nice to visually see...like the list of people that had helped me...and what I had done that day”, “it was just, it was kinda nice to, like have to do it, and reflect and go back on like...and, and talk about all the positive things that happened to you, during the day, which was nice kind of to do”).

These findings are consistent with EW literature that notes that EW provides an opportunity for reflection (Esterling et al., 1999; Frattaroli, 2006; Johnston et al., 2010; Kirk et al., 2011; Koopman et al., 2005; Slatcher & Pennebaker, 2006). Although the LIWC does not analyze self-reflection words, participants in the Study 1 experimental group did utilize more cognitive processing words than those in the experimental group, possibly indicating that they were reflecting on social support in their writing.

In addition, these results are consistent with similar research that has established that journal writing and other forms of personal writing provide opportunities for reflection (Andrusyszyn & Davie, 1997; Boud, 2001). Boud (2001) defines reflection as “taking the unprocessed, raw material of experience and engaging with it as a way to make sense of what has occurred” (p. 10). This definition of reflection makes sense for the present EW samples, as participants wrote about instances of social support that they received each day, thereby taking the “raw material of experience”, namely the actual receiving of the social support, and then engaged with it through the writing as a way to make sense of what had occurred. This allowed participants the opportunity to delve deeper into the meaning of the social support that they received, and to reflect on what it meant to them.

Theme 5: Writing was a positive experience. The fifth theme that emerged from the data within the first content analysis dealt with participants’ comments about the writing being a positive experience for them. Eighty percent of the participants stated that the writing was a positive experience for them (e.g., “I feel like it was a positive experience”, “I just think that it was a good experience, umm...I’m glad I did it”, “I found it ultimately like a really enlightening experience. I really liked the study...it was really cool”). It is important to note, that interestingly, no participants reported having a negative writing experience.

These findings are consistent with EW literature, with the majority of participants finding the writing to be helpful or reporting a positive attitude towards the writing (Frattaroli, 2006). Other research has indicated that 98% of participants would choose to complete an EW study again (Pennebaker, 1997a). This theme provides qualitative evidence that EW is enjoyable for participants. This finding is important, as some individuals may view traditional therapy as undesirable or non-enjoyable (e.g., Vansteenkiste & Sheldon, 2006), and therefore, introducing a treatment that is rated as enjoyable by participants may help to break the stereotypes of what is involved in treatment. Additionally, research has demonstrated that engaging in positive or enjoyable activities in general helps to reduce depressive symptoms in and of itself (e.g., Seligman, Steen, Park, & Peterson, 2005). This intervention then may have compounded effects of reducing depressive symptoms through the engagement in writing about social support as well as engaging in an enjoyable activity.

Theme 6: Miscellaneous. This theme consisted of process of writing codes that did not fit into any of the other themes. Sixty percent of the participants made comments that fell into this category (e.g., “whereas in other points in my life, I write something that can...that should be critiqued by other people. And...so I’m writing for them, I’m writing like an essay, something that has to be...you know done a certain way”, “I really liked the prompting hey? Like it just reminds you just to take 10 minutes out of your day”, “I think that it was really important umm...that it happened every day. Because I could imagine you know if I wrote you know once a week for four weeks let’s say, I think...I don’t think it would have been as big of an impact, or I wouldn’t have noticed it as much”). Overall, seven codes were placed into this category.

Implications of process of writing themes. In summary, the five (non-miscellaneous) themes within the process of writing content analysis have a number of implications for both

research and practice. First, in terms of clinical implications, the resulting themes indicate that some flexibility in terms of timing of the writing sessions may be necessary as some participants indicated that they found the time limit to be restrictive. Therefore, clinicians who implement this type of writing with clients could use suggested time frames for writing (e.g., write for between 10 to 15 minutes), rather than using specific time limits, leaving the clients to determine how long they wish to write for. This may help clients feel more in control of how long they write for, and allow for the fact that different people write at different speeds, and that some individuals may require more time to adequately engage in the abstract thought processes required in expressive writing. The majority of participants noted that there are benefits to writing over and above just thinking about something, and the research literature also demonstrates additional benefits to writing things down. Therefore, it may be important to deliver some psychoeducation around the benefits of writing to clients when introducing a writing intervention like this into treatment to help increase engagement. Additionally, because some participants find this type of writing difficult, it would be important to warn clients that the writing may be difficult for them, but encourage them to continue engaging in the writing process. Due to the fact that many participants noted that the expressive writing task allowed them an opportunity to reflect on their day and their social support, clinicians may also utilize expressive writing to help increase self-reflection in clients. Given that the majority of participants viewed the writing as a positive experience, introducing a treatment that is rated as enjoyable to participants may help to break stereotypes of what is involved in treatment, and may help to increase client engagement in the treatment process. Clinicians may therefore utilize this treatment approach to help demonstrate to clients that engaging in treatment can be enjoyable, as well as lead to positive results.

With regards to research implications, these results indicate that since some participants

found the time limit to be restrictive, it may be necessary to give participants more open ended time limits (e.g., write for between 10-15 minutes), as opposed to strict time limits. Although this may allow participants to feel more in control of the writing process, and allow for the fact that different people write at different speeds, it also introduces a new variable into the study. Namely, one element that was controlled across participants (i.e., the time limit) is now uncontrolled, and may result in different effects of the writing depending on how long participants chose to engage in the writing process. This could be controlled for statistically, or could be used as a moderator variable to determine what effect different writing times could have on outcomes. Some participants viewed writing and thinking as equivalent in terms of effectiveness, whereas others viewed writing as more beneficial. Therefore, it may be interesting for future researchers to ask participants if they view writing as more beneficial than thinking or if they view them as equivalent in terms of effectiveness to determine if participant opinions about writing have any effects on outcomes. For example, it may be that participants who view writing as more beneficial than thinking would have better outcomes than those who view thinking and writing as equivalent. Given that some participants viewed the writing as difficult, and that past research has established that expressive writing conditions are typically rated as more difficult than control writing conditions, researchers may be able to use this rating as a manipulation check to ensure that the expressive writing condition is in fact rated as more difficult than the control condition.

Content Analysis 2: EW Outcomes

The purpose of the second content analysis was to capture codes related to outcomes brought about by the writing. In other words, themes within this content analysis went beyond the participant views of the process of writing, and focused on what participants believed

occurred *due to* the writing. In order for codes to be sorted into this content analysis, they had to deal with outcomes that occurred as a result of the writing and not with the experience of writing (For theme definitions see Appendix K, for a thematic map, see Figure 6). This content analysis resulted in 10 themes: a) thankfulness, gratitude, appreciation; b) noticing, increased awareness/attention; c) considerations of what is social support d) being supportive to others; e) importance of social support; f) emotions related to support; g) writing changed perspective; h) going forward; i) recommend expressive writing to others; and j) differentiating supports.

Theme 1: Thankfulness, gratitude, appreciation. The first theme in the data related to outcomes brought about by the writing covered participants' comments on being more thankful for their support due to the writing, as well as reflections on taking their support for granted before the writing. All 10 of the participants made comments on thankfulness for their social supports brought on by the writing. This theme encompassed five subthemes, discussed below. Any code that mentioned thankfulness, gratitude, appreciation, or luckiness was sorted into one of the following subthemes.

Subtheme 1a: Expressing thankfulness. Codes that fell into this subtheme described how writing led participants to be more outwardly thankful for their support (e.g., “since it kinda made me more aware I said...I started saying thank you to people a lot more when they started doing...social support I guess...so...it made me express it...kind of...I guess verbally a little bit more”, “after I reflected, I did say thank you more”, “but since, I have been more outwardly thankful”). In order to be grouped in this subtheme, codes had to go beyond discussing support as a positive experience and speak explicitly about expressing thankfulness for that support.

Subtheme 1b: Lack of gratitude/taken for granted. This subtheme was composed of codes that dealt with participants taking their social supports for granted before the EW

EXPRESSIVE WRITING AND PERCEIVED SOCIAL SUPPORT

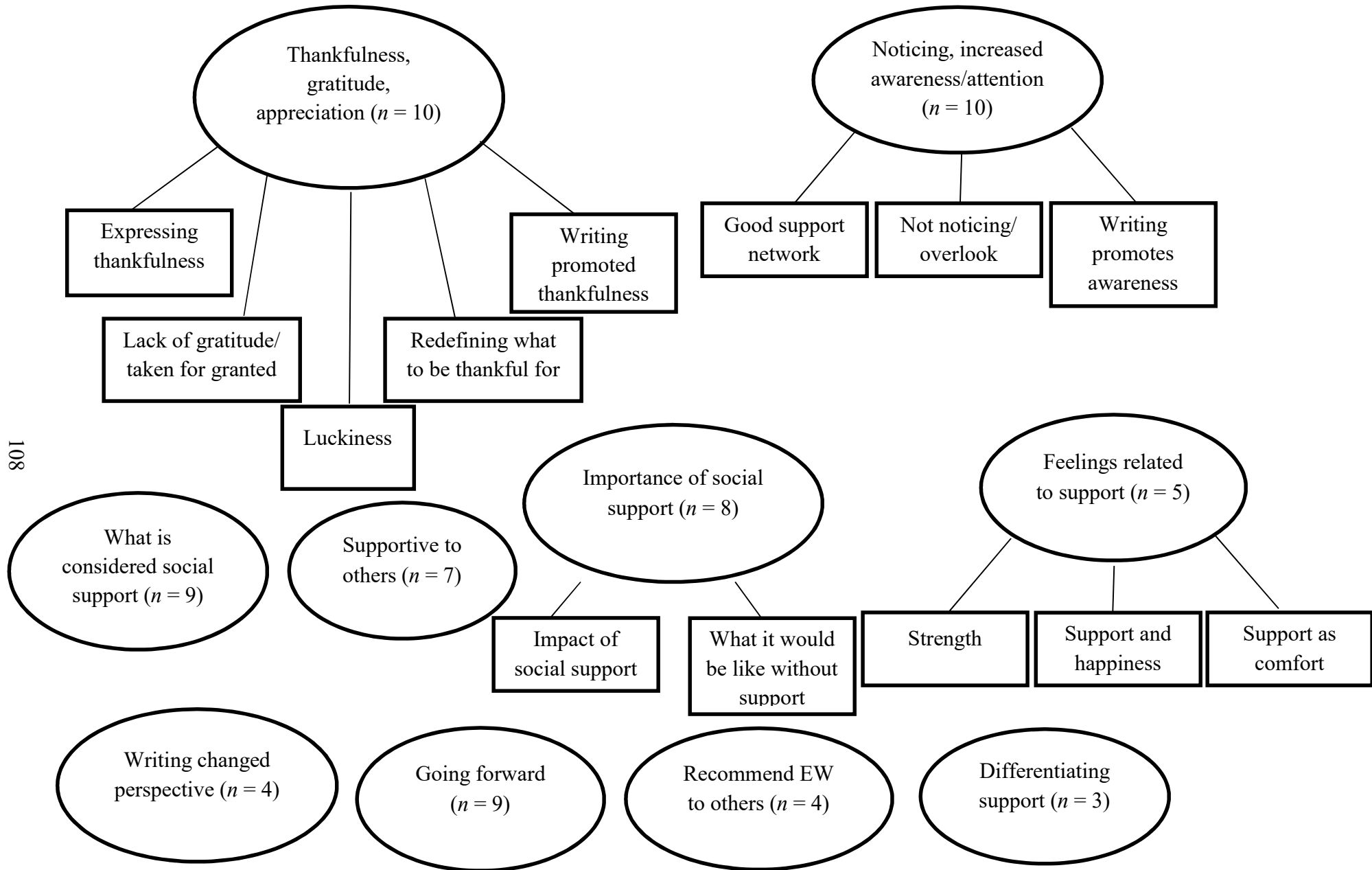


Figure 3.2. Outcomes Thematic Map.

EXPRESSIVE WRITING AND PERCEIVED SOCIAL SUPPORT

intervention. Some participants noted that before the writing intervention they took their support for granted and did not feel thankful for it (e.g., “I never appreciated the support around me as much...I never like gave them much acknowledgement”, “if I didn’t have this study, if this didn’t happen, I wouldn’t have valued them as much”, “I probably wouldn’t have...appreciated it as much...if I hadn’t gone over it in that...like 10 minute amount of time”, “it’s so easy to be ungrateful for the support that you have”, “I pretty much completely took it for granted”).

Subtheme 1c: Luckiness. This subtheme dealt with participants’ comments of feeling lucky to have the support that they do (e.g., “so that made me feel lucky that I did have so many people that supported me and that I could constantly keep writing and it wasn’t that hard to think of...times when people had supported me”, “I’m very lucky that I have so many people that I know, that if I had to talk to them about something or really needed help with something, like they would be there”). In order to be sorted into this subtheme, codes had to contain the term “lucky”.

Subtheme 1d: Redefining what to be thankful for. This subtheme contained codes dealing with participants noting that the writing changed what support they are thankful for. In other words, codes within this subtheme dealt with rescaling what to be thankful for, so that smaller acts of social support were seen as things to be thankful for (e.g., “But now that I did this, I think more about the little things...and I’m equally thankful”, “I’ll be more thankful of the little things”). In order to be sorted into this subtheme, codes had to go beyond simply stating that smaller things were seen as acts of social support and specifically state that they were thankful for those smaller acts.

Subtheme 1e: Writing promotes thankfulness. Codes that were sorted into this subtheme dealt with participants’ comments on feeling increased thankfulness for their supports due to the

writing (e.g., “it just makes me, I guess just more appreciative of them and like grateful that...they’re sharing their experiences with me...and their wisdom in a sense”, “It made me feel really thankful...for the things that...people go out of their way to do to help me”, “so it definitely made me a lot more grateful for what I have”, “it’s a good way to reflect and become....I don’t know, just more grateful for everything that I actually have in my life.”, “it made me really appreciate the support I do have”). This subtheme was sorted into the second content analysis instead of the first because it dealt with an outcome brought about due to the writing and not the process of writing itself.

These findings provide further incidental support for EW aimed at perceived social support as a potential intervention for low social support and depressive symptoms, as a large body of research indicates that activities that increase gratitude are effective at increasing psychological well-being, and specifically at decreasing depressive symptoms (e.g., Boiler et al., 2013; Gander et al., 2013; Kleiman, Adams, Kashdan, & Riskind, 2013; Senf & Liao, 2013; Sergeant & Mongrain, 2014; Toepfer, Cichy, & Peters, 2012; Wong et al., 2016). Three of these studies examined the effect of writing gratitude letters to a person that participants were grateful to but had not properly thanked (Senf & Liao, 2013; Toepfer et al., 2012; Wong et al., 2016). One of the studies had participants subsequently deliver these letters to the people they were grateful to (Senf & Liao, 2013), while another one of the studies combined the gratitude letter writing with psychotherapy (Wong et al., 2016). All three of these studies examined the effectiveness of the gratitude writing as compared to a control group. Results of these studies indicate that gratitude writing was correlated with: increased happiness (Senf & Liao, 2013; Toepfer et al., 2012), decreased depressive symptoms (Senf & Liao, 2013; Toepfer et al., 2012), and significant improvements in mental health (Wong et al., 2016).

The difference between previous research and the present research is that in previous research, participants engaged in activities that were designed *specifically* to target and increase gratitude (e.g., gratitude writing; Wong et al., 2016), whereas in my research, the increase in gratitude was a side-effect of writing about social support. This indicates that gratitude need not be specifically targeted in order to be amenable to change. Because this increase in gratitude was not anticipated, gratitude was not measured as an outcome variable. It would be interesting if future quantitative research measured gratitude to determine if measurable increases in gratitude occur due to writing about social support.

Theme 2: Noticing, increased awareness/attention. The second theme within the second content analysis dealt with increased awareness of social supports. All 10 of the participants made comments about increased awareness of their social supports due to the writing. Codes encompassed by this theme centered on increased awareness of participants' social support due to writing about it, as well as codes related to how they overlooked their support before the writing. Three subthemes emerged within the data:

Subtheme 2a: Realization of good support network. This subtheme dealt with comments from participants noting that the writing made them realize that they had good support networks, and that their supports would be there for them in times of need (e.g., "I found in my writing that it was like...pretty much the same people over and over. Even the days where it was like...a few different people, you still always have the same support", "I was really like happy that I have those people that are there for me just on like a day to day basis with every day kind of things. That help...you know...keep me sane and like...from going crazy with just like school stuff", "it did actually surprise me that I legitimately had...a pretty good support system").

Subtheme 2b: Previous not noticing/overlooking support. Codes that were sorted into this subtheme focused on participant comments on how they had a tendency to overlook or not notice the support that they receive before the writing (e.g., “I never realized how much...people support me I guess in a sense, like, like I...I didn’t realize how many people I go to and which ones I go to for what”, “I think from day to day I don’t really think about how much social support you actually receive”, “And, I didn’t really think about how much my family and friends...or boyfriend were actually doing for me until I started...writing it out”, “I didn’t realize on like a day-to-day basis how much like social support I just have there, and that I didn’t even realize...was there”).

Subtheme 2c: Writing promotes awareness. This subtheme was comprised of codes that stated that the writing promoted more awareness of participants’ supports and brought more attention to them (e.g., “it just makes you be more mindful of things when you have to like consistently do it and write about it and think about it every day...and I think that like increases awareness of things and of yourself and of others around you”, “so after the first day I was kinda more aware of what was going on around me...or...who I had seen that day”, “it has definitely made me more aware of all of the support that is going on around me”). This subtheme was sorted into the second content analysis instead of the first because it was made up of codes that concerned an outcome brought about by the writing as opposed to dealing with the experience of writing itself.

These findings are consistent with theory on EW suggesting that one of the reasons for the benefit of EW is that the writing helps individuals to gain an increased awareness or insight (e.g., Pennebaker & Chung, 2011). This is one of the more recent theories on why EW works and suggests that EW helps clients to gain increased awareness or insight into themselves and their

emotions and that this is what leads to the benefits of EW (e.g., Brody & Park, 2004; Pennebaker & Chung, 2011). The present study therefore provides qualitative evidence supporting this theory, as it demonstrates that EW does increase awareness in participants. This increased awareness of social support reported by participants may also be linked to the increased perceptions of social support in Study 1. This finding then has important implications for theory, as no previous studies have established qualitatively that EW has an effect on awareness in participants. This also has implications for treatment, as writing instructions could be tailored specifically to attempt to increase awareness in participants.

Theme 3: What is considered social support? The third theme that emerged from the data related to outcomes that occurred due to the writing covered participants' comments that the writing changed their opinion on what counts as social support. Ninety percent of the participants noted that their definitions of social support changed due to the writing. Codes within this theme spoke about rescaling of what acts would be considered socially supportive (e.g., "I think by looking at social support through the writing I thought about like how anyone could really help you if you just kind of ask them...if it's not like a really serious thing that you need help with, but...how everyone is kind of a social support if you...use it as a means of social support", "I learned...umm...that them taking a small interest in my life or just the smallest things mean that they're still supportive", "even the little things can be considered social support", "social support is really any little thing that someone does for you", "social support, yeah, yeah but, yeah it can just be little things that people take for granted").

This finding suggests that the writing can lead participants to redefine their social support, allowing them to view smaller shows of support as supportive. This has important implications for treatment, as we know that low perceived social support is a vulnerability factor

for subsequent depressive symptoms (e.g., Khatlib et al., 2013; Woodward et al., 2013), and this intervention can help individuals see smaller acts of support as supportive. Additionally, as established in Study 1, this intervention can lead to increases in perceptions of social support and reductions in depressive symptoms after only four days of study. These findings together fit with “Relational Regulation Theory” (Lakey & Orehek, 2011), which states that perceived social support may be most influenced by more daily or mundane interactions, such as someone asking “how are you?”, as opposed to larger shows of social support. The theory goes on to state that it is these more “ordinary” interactions that serve as a basis for expectations about support. From this perspective, it is important that individuals pay attention to such daily interactions, as they may serve a key role in the link between social support and mental health (Lakey & Orehek, 2011; Lakey & Tanner, 2013; Uchino et al., 2012). To date there have only been a few studies designed to test “Relational Regulation Theory”, but the evidence from these studies suggests that daily social interactions such as ordinary conversations, shared activities, and even mundane online interactions have a significant effect on affect, and account for a significant amount of the variance in perceptions of social support (Lakey, Cooper, Cronin, & Whitaker, 2014; Lakey, Vander Molen, Fles, & Andrews, 2016; Seo, Kim, & Yang, 2016; Woods, Lakey, & Sain, 2016). The current result then may suggest that one of the reasons for an increase in perceived social support is that more things are recognized to be social support, thereby increasing the pool of support to draw from when establishing perceptions of social support. Although my data cannot reach any strict conclusions, it is possible that this expansion of the definition of social support may be related to the increased perceptions of social support and decreases in depressive symptoms found in Study 1.

Theme 4: Being supportive to others. The fourth theme within the second content analysis was comprised of codes in which participants noted that the writing encouraged them to be more supportive to others. Seventy percent of the participants made comments about the writing leading them to be more supportive to others (e.g., “I think because of this...umm...I was able to think before I acted and go ‘OK, what should I be doing to support the people around me?’”, “it kind of encouraged me to be more supportive to my family as well as other people”, “So it probably benefitted me in the fact that I would try to do it for others and make others’ days like a bit brighter and more cheery”).

This finding suggests that writing about social support can lead to an increase in the provision of social support to others. This finding is consistent with theory stating that EW can lead to social changes in participants (e.g., Pennebaker & Chung, 2011). Specifically, the social integration theory of EW notes that engaging in EW can lead participants to be more open with others in their social network. However, the current finding suggests that EW can perhaps lead to other social and behavioural changes in individuals, and may lead individuals to be more socially active through providing social support to others. This increase in prosocial behaviours by participants may also be connected to experiencing gratitude due to the writing, as research indicates that individuals who are grateful are more motivated to act in ways that are beneficial to others (Disabato, Kashdan, Short, & Jarden, 2017; Froh, Bono, & Emmons, 2010). Future research should examine these possibilities. Future research should also examine the possibility that EW has its effect on depressive symptoms via behavioural activation (Dimidjian, Martell, Addis, & Herman-Dunn, 2008; Disabato et al., 2017), which focuses on alleviating depressive symptoms by increasing clients’ engagement in pleasant and rewarding activities, and has been shown to be effective at reducing depressive symptoms across a number of studies (Cuijpers, van

Straten, & Warmerdam, 2007; Dimidjian et al., 2006; Dobson et al., 2008; Zeiss, Lewinsohn, & Munoz, 1979).

This finding also has another important implication, namely, research has demonstrated that helping and supporting others can lead to improvements in mental and physical health, and specifically reductions in depressive symptoms and increases in happiness (e.g., Inagaki & Orehek, 2017; Post, 2005; Schwartz & Sendor, 1999). Therefore, the current EW intervention may have an added effect of further reducing depressive symptoms and increasing happiness by leading participants to be more supportive to others in their social networks.

Theme 5: Importance of social support. The fifth theme that emerged in the second content analysis dealt with participants' comments on the impact of social support in their lives as well as what life may be like without support. Eighty percent of the participants made comments about the importance of social support in their lives. Two subthemes emerged from the data:

Subtheme 5a: Impact of social support. This subtheme contained codes that referred to participants' remarks on how much social support impacted them both on a daily basis and in general (e.g., "and there were people who reached out to me, and I...I never really thought of how much that impacted me until I wrote it down and I was prompted", "I think a lot of the reason why I'm here at University is because of the social support that I receive from my friends and my family...and lots of people", "when I actually spent time thinking about it...it made me realize that it's more important than what it seems like it might be at first", "the writing kind of made me think about how important it really is to get support").

Subtheme 5b: What it would be like without support. This subtheme was comprised of participant observations that the writing made them consider what life might be like without

supportive others (e.g., “made me think about what life would be like if people didn’t care...or didn’t umm...socially support me”, “kind of made me understand what it’s...what it might be like to be other people who...umm...like I said before, like that don’t have those means of social support in their life”, “it would be lonely not having people...you know there to support you”, “If I just had no support at all from my mom or just anyone, then I probably would be a completely different person even...or in a lot of ways just not be who I am.”).

These findings demonstrate that reflection on one’s social support through writing allows participants to see how important social support is. This may be one of the reasons that gratitude in participants increased, as they were able to see how important social support is in their lives, as well as examine what life might be like without social support. In doing so, participants may then have experienced increased gratitude for the social support that they do have. In other words, the writing provided an opportunity for participants to reflect (Boud, 2001) and delve deeper into the meaning of the social support that they were receiving. This allowed participants to see the importance of social support in their lives and to imagine what life might be like without supportive others. Although additional research would be required, it is possible that the realization of the importance of social support in one’s life may be related to the increases in perception of social support found in Study 1.

Theme 6: Feelings related to support. The sixth theme that concerned outcomes brought about by the writing contained codes that appertained to participants reporting having different emotions related to support that they received. Fifty percent of the participants made comments about emotions related to support. This theme was comprised of three subthemes:

Subtheme 6a: Strength. This subtheme dealt with one participant's report of feeling stronger due to having others there to support them (e.g., "I feel stronger because I realize well people are there to support me").

Subtheme 6b: Support and happiness. This subtheme was made up of codes in which participants noted that receiving support made them happier (e.g., "it makes...you happy because somebody else is going out of their way to help you", "so basically like the more...support I'd receive the more...the happier I'd get", "most interesting thing I noticed was as I was writing or like at least umm...thinking about social support throughout my day I was just ultimately more chipper...and nicer to people").

Subtheme 6c: Support as comfort. Codes that made up this subtheme concerned participants' reports of feeling comforted knowing that they have others around to support them (e.g., "Yeah and it was just kind of nice to know like if I did need to talk to someone about something, like, I know that someone...would talk to me about it", "it's just, it's nice...and...like comfortable I guess, like knowing that that's there...it's like a security blanket...to have other people", "it's definitely like comfortable...and like almost like...just like a safe thing, like having those people there all the time").

These findings demonstrate that writing about social support can lead participants to feel positive emotions about their social supports. This has important implications for treatment, as these positive feelings about social supports may translate into the increases in perceived social support and reductions in depressive symptoms found in Study 1. For example, if a college student writes that their friend helped them in some way, this leads to a recognition and appreciation of the support provided, which in turn leads the writer to feel positive emotions about their social supports and feeling more supported. Perceiving social support is especially

important to college students and higher perceptions of social support have been demonstrated to protect against the development of depressive symptoms (e.g., Applebaum et al., 2014; Bozo et al., 2009; Lakey & Orehek, 2011; Puyat, 2013; Smith et al., 2013; Zimmer & Chen, 2012). This process of positive feelings leading to more positive outcomes shares features with Fredrickson's (1998, 2001, 2004) "Broaden-and-Build Theory of Positive Emotions". This theory proposes that experiencing positive emotions lead individuals to "broaden" their repertoire of positive thoughts and actions in the moment, and to "build" lasting personal resources, such as social integration (Fredrickson, 2004). The current intervention can help individuals to feel more positive about their social supports and may help to increase perceptions of social support. Future studies should attempt to replicate the current findings.

Theme 7: Writing changed perspective. The seventh theme relating to outcomes brought about due to the writing was comprised of codes in which participants commented on the writing changing their perspective or outlook. Forty percent of participants made comments on the writing leading to a change in perspective (e.g., "I look back and I think...like I have a new outlook on life...in part because of 10 minutes a day. Like that's nothing, and everyone could afford 10 minutes a day", "It definitely changed how I think about my life", "it was just...unworldly how much it changed my perspective"). Due to the fact that this theme dealt with outcomes that occurred due to the writing and not with the experience of writing itself, it was sorted into the second content analysis.

This is consistent with EW literature that notes that writing leads to changes in perspective (e.g., Pennebaker & Chung, 2011). This change in perspective is theorized to be one of the reasons for the effectiveness of EW. Evidence for this theory has demonstrated that those individuals who change perspectives in their writing (e.g., by changing pronoun use from "I" to

“we” or vice versa) had the most significant improvements in health outcomes (Pennebaker & Chung, 2011). This finding then provides qualitative evidence for this theory, as participants self-reported a change in perspective brought on by the writing. This has important implications for theory then, as no previous studies have established qualitatively that EW leads to changes in perspective.

Theme 8: Going forward. The eighth theme in the second content analysis dealt with participants’ comments on what they would do going forward. This included continuing to write about social support. Ninety percent of the participants commented on what they would do going forward after the writing (e.g., “I’m gonna keep going for 10 minutes every day, about the same time”, “will continue to do this because it’s, it’s really...moving like I didn’t realize how much it would change the way I thought”, “I think writing can be very therapeutic...so I’ll write but not every day”), continuing to be more aware of social support (e.g., “I will continue to...be more aware of...what’s going on around me...in terms of family, friends...umm...and more aware of what...kind of support...my family and friends may have”), and reflecting on social support each day (e.g., “every night since I’ve done it I just kind of like reflect on my day and think about the people that have...I’ve interacted with that day, that have supported me that day. So I think I’ll continue doing that”).

These findings demonstrate that participants found the writing and reflection on social support to be helpful, as they planned to continue to reflect or write going forward. To further assess this, three participants were interviewed four weeks after their initial interview to ascertain if they had indeed continued with the EW task. One participant reported they had continued doing the writing and they were still more aware of and grateful for their social support (“Yeah I’m still doing the writing”, “I’m still more aware of my social supports than before the writing”,

“makes me...so much more grateful. And I thought that would kind of wear off, but it hasn’t”), one participant reported that they had not continued writing, but were still more aware of and grateful for their social support (“I haven’t been writing anything but I definitely have been thinking about it more”, “Yeah, more aware of the support that I receive”, “ so I’m definitely more grateful about when I receive any kind of support from people, whether it’s small or big”), and one participant reported they had not continued writing and that their awareness of and gratitude for their social support had “returned to normal” (“my awareness isn’t as heightened as much because I haven’t been writing about it”, “I’ve just gone back to a normal....like what my normal was”). These findings are promising but indicate that intention did not universally match follow up behaviour. This theme also indicates that the activity of reflecting or writing about social support may be self-reinforcing. This has important treatment implications, namely, if participants plan to continue to write or reflect even after the intervention period ends, it suggests that participants enjoy the task and find it to be helpful. This would make it easy to implement this activity as an ongoing intervention.

Theme 9: Recommend expressive writing to others. The ninth theme within the second content analysis contained codes in which participants said that they would recommend or had already recommended expressive writing about social support to others because they themselves had found it to be beneficial. Forty percent of the participants made comments about recommending expressive writing to others (e.g., “I would recommend other people to do it as well...like I feel like...I feel like if there’s like an area that someone needs help on...it would help with in their life”, “I would probably even recommend someone else doing this. Because, it just helped me so much and I didn’t realize how it would”, “I’m definitely gonna recommend someone else does this, because it, it makes you think more of yourself and more of others also”,

“I’ve gotten like five of my friends doing the exact same thing, just every day writing what’s been good for them in the day”).

This finding has important implications. Namely, if participants would recommend this form of writing to others, it would make the intervention that much more powerful, as others may begin to do the writing based on the participants' recommendation. This shares features with “Social Learning Theory” (Bandura, 1971), which proposes that individuals can learn from one another through observation, modeling, and imitation. By recommending an intervention to peers, individuals are modeling a behaviour that they have found helpful, and allowing others to see the benefits of engaging in this behaviour. This may lead others to imitate the behaviour, and thus pass on the benefits from one individual to another. Peer support and recommendations from people who have had positive outcomes due to the intervention are likely to motivate others to get involved. Although traditional psychotherapy has effects that go beyond the treated individual to their social networks (e.g., Hunsley, Elliott, & Therrien, 2013), the current intervention has the potential to reach many more individuals. If the recommendations continued to spread, this type of treatment could help many more people than one-on-one treatment could ever hope to reach. Additionally, since this intervention can be done on one’s own without the involvement of a clinician, individuals who have engaged in an EW intervention can recommend it to others and explain what it involves without the need for the new participants to engage with a clinician.

Theme 10: Realizing that there are different supports. The tenth theme to emerge from the data that dealt with outcomes brought about by the writing was made up of codes that concerned participants realizing that there are different kinds of support, and that diverse situations required different types of support. Thirty percent of the participants made comments

about realizing that there are different types of support (“I know what person to go to for school, what person to go to for like a relationship, what person to go to for work kind of thing”, “the fact that there is different kinds of support...and...hmm...and yeah just like realizing umm...yeah, I guess just realizing that like...I need the different kinds of support too”).

This finding demonstrates that the writing allowed participants to differentiate between the kinds of support that might be helpful in diverse situations. This has important implications for the use of social support. If participants are better able to differentiate between the kinds of social support available to them from different people, it may make the use of social supports more efficient. In other words, if individuals are better able to identify who to go to for support and when, they may be able to utilize their social networks to greater effect. This may also help individuals to feel more socially supported, and research has demonstrated that increased perceptions of social support are protective against the development of depressive symptoms (e.g., Applebaum et al., 2014; Bozo et al., 2009; Lakey & Orehek, 2011; Petit et al., 2011; Puyat, 2013; Smith et al., 2013). This finding also has important implications for excessive reassurance seeking behaviours. Research has demonstrated that individuals who are depressed tend to excessively seek reassurance from others, and that engaging in excessive reassurance seeking puts individuals at risk for developing depression (e.g., Burns et al., 2006; Joiner & Metalsky, 1995; Joiner et al., 1999; Knobloch et al., 2011; Starr & Davila, 2008), however, if individuals are better able to identify who to go to for specific types of support, they may be less inclined to excessively seek reassurance from others.

Implications of EW outcomes. In summary, the 10 themes within this analysis have a number of important implications for theory and clinical practice. First, in terms of implications for theory, the above themes indicate that one of the ways in which EW about social support may

be effective is by increasing gratitude within participants. Another way in which EW about social support may work is by increasing participants' awareness of their social supports. One theory in the research literature suggests that EW works by allowing the writer to have more personal awareness and insight (Brody & Park, 2004; Pennebaker & Chung, 2011). This result also provides qualitative support for this theory. The results also provide support for "Relational Regulation Theory" (Lakey & Orehek, 2011), Fredrickson's "Broaden-and-Build Theory of Positive Emotions" (1998, 2001, 2004), and "Social Learning Theory" (Bandura, 1971). Thus, my results imply that multiple theoretical applications could be valid for the mechanism of EW.

In terms of implications for clinical practice, the resulting themes indicate one important outcome of engaging in writing about social support is experiencing increased gratitude for that support. Therefore, clinicians can help clients to focus on being thankful for any support that they write about, as this may help in increasing perceptions of social support. Clinicians can also use the resulting content themes to determine if clients are meeting EW content "targets", although future research should first be conducted to confirm these (e.g., increased awareness of social support, changes in the definition of support). Overall, these beneficial content themes can also be used to motivate clients through the sometimes difficult process of EW, as identified in the first content analysis. For example, when encouraging clients to persist through difficult writing, clinicians can note markers of increased gratitude or awareness as signs of positive progress. Another important outcome of engaging in this writing is becoming more aware of one's social supports. It is important then for clinicians to ensure that their clients are more aware of their social supports after engaging in the writing to ensure that the writing is getting the desired results. Clinicians can also check in with clients to determine if the writing is leading to changes in the definition of social support to include smaller demonstrations of support.

Participants in the current study noted that writing about social support also led them to be more socially supportive to others. Research has demonstrated that providing support to others can lead to increased happiness and decreased depressive symptoms (e.g., Inagaki & Orehek, 2017; Post, 2005; Schwartz & Sendor, 1999), and clinicians can use this evidence and potential mechanism to create additional treatment targets (e.g., providing support for others) that might further alleviate their symptoms and encourage EW. Furthermore, since participants in the current study suggested that they might continue to engage in the writing even after the intervention period has ended, it may be that this EW task is self-reinforcing, and may therefore be easy to implement as an ongoing treatment strategy for clinicians. Also, given that participants in this study stated that they were likely to recommend this type of intervention to others, it may be an especially powerful clinical tool, that has the potential to spread its benefits to others in a client's social network.

Connecting Process and Outcome Themes

Although two different groups of themes emerged from the study, it is important to note that the process and outcome themes are still connected. First, despite the fact that some participants noted that they found the time limit to be restrictive, they still experienced positive outcomes due to engaging in the writing, such as experiencing increased gratitude for their social supports, becoming more aware of their supports, and being more likely to support others. Second, it is clear that participants engaged in critical thinking about the writing itself, and many compared the act of writing to the act of thinking. By engaging in this manner with the task, participants were able to benefit from the writing process. Third, although some participants found the writing task to be difficult, they nonetheless experienced positive outcomes due to engaging in the writing process. Fourth, participants noted that the writing allowed them an

opportunity to reflect. It is likely through this process of reflection that participants were able to become more aware of their social supports, be more grateful for the support that they received, consider what actions would be classified as social support, realize the importance of social support, change their perspective on social support, and realize that there are different types of support available from different people in their social networks. Finally, many participants noted that engaging in the writing was a positive experience for them. This likely allowed them to fully engage in the writing process, and make them more likely to experience positive outcomes due to the writing.

Study Strengths and Limitations

One major strength of this study is the qualitative design. By using this design, I was able to discover that participants experienced increased gratitude for and awareness of their social supports, that participants planned to continue writing after the intervention ended, that participants would or had recommended the writing intervention to others, and that the writing encouraged participants to be more supportive to others. These results would not have been found using a traditional, deductive quantitative design. Additionally, I was able to confirm that the writing task was enjoyable to participants, and provide qualitative evidence in support of the social integration theory of EW, as well as find qualitative support for “Relational Regulation Theory” (Lakey & Orehek, 2011). Without the richness of data gathered with a qualitative design, much of this would have remained undiscovered. This is one of the first EW studies to employ an inductive qualitative analysis, and this has led to further insights into the process of EW.

Although the results of the study are interesting, there are some limitations. First, the sample was an undergraduate one, and consequently results are not generalizable to individuals

with a clinical diagnosis and/or severe levels of depressive symptoms. Second, all participants were women, and therefore results may not apply to men. This is due to the research evidence that suggests that many men who adopt “traditional” gender roles are typically less able and/or willing to engage with their emotions (e.g., Kingerlee, 2012; Levant et al., 2006; Sullivan, Camic, & Brown, 2015), and may have therefore have not engaged with this writing task in the same way as women. However, there is some evidence that expressive writing studies with more men actually had higher effect sizes (Mackenzie, Wiprzycka, Hasher, & Goldstein, 2007; Smyth, 1998), which may mean that men in this type of study may have experienced more substantial changes given that they may start out as less emotionally “in tune” than would women. This gender bias may have occurred as participants self-selected into the study, and may have appealed more to women, or it may be that the pool from which participants were drawn was comprised mostly of women. Third, this study did not measure levels of depressive symptoms or perceived social support, and consequently it is not possible to determine whether the intervention was successful in this sample. Fourth, only three of the five participants invited for follow-up interviews participated in these interviews. All three participants reported different outcomes, and this makes it difficult to know which outcomes would be most common for a larger group of participants. Fifth, three participants did not complete the interview portion of the study. These participants did not respond to e-mails, and therefore it is unknown why they discontinued the study before completing the interview. Sixth, the interview data gathered was not rich enough to conduct a more thorough qualitative analysis of the data, and only resulted in the sorting of data into separate themes, therefore future studies should attempt to conduct more thorough interviews to gather richer interview data.

Future Directions

Given that this study did not measure depressive symptoms or perceptions of social support, future studies should employ mixed-methods designs (Creswell & Plano Clark, 2011). Specifically, a mixed-methods design could use quantitative methods to measure depressive symptoms and perceptions of social support as well as qualitative methods to gain an understanding of participant experiences of the writing. Additionally, future studies should investigate this intervention in men, non-university students, and clinical samples to determine if the results are generalizable to those with severe depressive symptoms.

In regard to future directions for research, the results suggest that participants noted changes in their gratitude due to the writing. Therefore, future research should measure gratitude prior to implementing the writing, and then again at follow-up to determine if measurable changes in gratitude result from the writing. Given that participants expressed that the writing led to increased awareness of their social supports, future research should ask participants about this increased awareness to determine if this increased awareness is common across samples. This study found that writing about social support led many participants to redefine social support to include smaller shows of support (e.g., someone asking “how are you?”). Future research should continue to ask participants if their definitions of social support were changed due to the writing using interviews. Furthermore, future research should examine the possibility that this expanded definition of social support is related to increased perceptions of social support and decreased depressive symptoms. Participants also stated that engaging in the writing led them to be more socially supportive to others, therefore, future research should examine if participants consistently report being more socially active, and specifically more socially supportive to others. Additionally, future research should examine the possibility that EW has its effect on

depressive symptoms via behavioural activation (i.e., by helping participants to engage in other gratifying and enjoyable activities). Participants in the present study also noted that the writing helped them to realize the importance of support in their lives. Future research should examine whether this realization of the importance of social support is connected to the increases in perceptions of social support found in Study 1. Many participants noted that the writing led them to experience positive feelings about their social supports. Future research should attempt to replicate these findings. Some participants noted that the writing led to a change in perspective for them, providing qualitative evidence in support of one of the theories of why EW is effective. Future research should continue to ask participants if the writing led to changes in perspective for them, to determine if this finding is replicable.

This was one the first studies to examine expressive writing focused on social support and participants' experiences of this writing using qualitative analysis. The results suggest that this intervention is enjoyable to participants, and it can increase gratitude for, and attention to social support. This intervention may therefore hold potential for affecting individuals who have low perceptions of social support as it may help them to become aware of and grateful for supports that they were not noticing in the past.

Chapter 4: General Discussion

The goal of my dissertation was to examine an EW intervention focused on social support across two studies. To the best of my knowledge, these are the first two studies to examine expressive writing focused on social support.

In Study 1, I found that overall, the EW intervention was successful. Compared to those in the control condition, participants in the EW group showed significant increases in perceived social support and significant reductions in excessive reassurance seeking. Consistent with earlier studies, EW was also associated with significant decreases in depressive symptoms (e.g., Baum & Rude, 2013; Gortner et al., 2006; Krpan et al., 2013). Compared to participants in the control group, those in the EW group used more emotion words (both negative and positive), causal words, and insight words (e.g., Baum & Rude, 2013; North et al., 2012; Pennebaker & Chung, 2011). Participants in the EW group also used more social and affiliation words. These findings therefore demonstrate that my EW task designed to target specific variables (i.e., social connectedness and interpersonal behaviors) was effective at doing so. Surprisingly, no word categories were associated with changes in perceived social support. However, the use of affiliation words was predictive of decreases in excessive reassurance seeking. Additionally, the use of social and family referent words was predictive of decreases in depressive symptoms.

In Study 2, I conducted interviews to collect participants' perspectives on the EW task and analyzed them for commonalities using content analysis. Two separate content analyses were conducted: one dealt specifically with the process of writing and participants' experience of the writing in and of itself and one dealt with outcomes that occurred due to the writing. With regards to the process of writing, five themes emerged: a) comments about the time limit (as being both too long and too short); b) comparison of writing to thinking; c) comments regarding

the difficulty of writing (both as too difficult and not too difficult); d) EW as a form of reflection; and e) EW as a positive experience. Ten themes emerged from analysis of the perceived outcomes of the intervention: a) writing leading to gratitude or thankfulness; b) increased awareness of social support; c) comments on writing changing what is considered as social support; d) increased expressions of social support by participants toward others; e) comments regarding the importance of social support; f) (positive) feelings related to social support; g) changed perspective because of EW; h) remarks regarding continuation of EW; i) recommending the EW task to others; and j) realizing there are different types of social supports. As described in my Study 2 results section, multiple themes also encompassed subthemes.

Interpretations, implications, strengths and weaknesses specific to Study 1 and Study 2 are discussed in their respective Discussion sections. Here, I discuss broad and holistic themes related to my dissertation and overall implications of my dissertation results.

Implications Regarding Individualized and Focused EW Interventions

Overall, my dissertation lends support to the idea that EW interventions can be focused on specific intervention targets and that it is possible to change perceptions of social support by directly targeting them. Previous research has established that it is possible to change perceptions of social support through interventions both that do not directly target social support (e.g., CBT; Martin et al., 2011; Stice et al., 2011) and those that do (e.g., online support groups; Indian & Gieve, 2014; Mikal et al., 2013; Oh et al., 2014). These studies then provide further evidence suggesting that it is possible to manipulate perceptions of social support through intervention, and that a relatively non-invasive intervention directly targeting social support can be effective at doing so. Moreover, the current studies provide further evidence supporting Coyne's (1976a) theory of depression, and suggest that an intervention targeting social support can be effective in

increasing perceptions of social support as well as decreasing excessive reassurance seeking behaviours and depressive symptoms.

This form of targeted intervention is important as it focuses on factors that are specifically related to the development and maintenance of depressive symptoms. Specifically, low perceptions of social support have been connected with the development and worsening of depressive symptoms (e.g., Bozo et al., 2009; Eom et al., 2013; Khatlib et al., 2013; Mburia-Mwalili et al., 2010; Skipstein, et al., 2012; Woodward et al., 2013; Zimmer & Chen, 2012) and high perceptions of social support have been shown to protect against the worsening of depressive symptoms (e.g., Applebaum et al., 2014; Bozo et al., 2009; Lakey & Cronin, 2008; Lakey & Orehek, 2011; Moak & Agrawal, 2009; Petit et al., 2011; Puyat, 2013; Smith et al., 2013; Zimmer & Chen, 2012).

Only one other study, to my knowledge, has examined such a targeted intervention, asking kidney transplant patients to write specifically about their procedure, rather than generally about stress (Possemato et al., 2010). As discussed, Study 1 indicated that asking participants to write about social support increased perceived social support, reduces excessive reassurance seeking, and reduces depressive symptoms. Participants writing about social support used more words related to emotions about social support, insight about social support, and social/affiliation words. These results were echoed in my Study 2 themes, which, consistent with the instructions, showed that participants were using EW to consider social support and their perspectives of it.

Although EW, overall, is considered a highly successful intervention some participants with certain types of concerns do not respond as well as others. For example, there is research evidence suggesting that EW may not be effective for patients with metastasised breast cancer (e.g., Mosher et al., 2012), children of alcoholic parents (e.g., Gallant & Lafreniere, 2003),

individuals with a diagnosis of bulimia nervosa (e.g., Johnston et al., 2010), individuals grieving the loss of a loved one (e.g., O'Connor et al., 2003), victims of sexual assault (e.g., Kearns et al., 2010), or individuals with PTSD (e.g., Sloan et al., 2011). Additionally, there is some evidence to suggest that EW may actually be iatrogenic for some individuals with PTSD (e.g., Gidron et al., 2002; Gidron et al., 1996). My initial evidence that more targeted EW interventions are efficacious might have promising implications for these non-responders. Having participants write specifically about what their major concern is at the time may help them to deal with what is truly on their mind, instead of focusing on traumatic events from their past. For example, patients with metastasised breast cancer could write about all of the support they have received since receiving a cancer diagnosis, as well as their experience of dealing with cancer. Individuals grieving the loss of a loved one could be encouraged to write about and reflect upon all of the good times that they had with the loved one, and to write down the emotions they are experiencing as a result of the loss. Furthermore, although Pennebaker's EW intervention has been used quite broadly, my results speak to the possibility that many more intervention targets can be addressed than the "traditional" approach allows for.

Relatedly, my Study 2 results speak to the idea that EW interventions might need to be more idiosyncratic and tailored to specific client needs in order to be more effective. For example, some participants felt that the time limit (10 minutes) was too short to allow them to really benefit from the intervention. A subset of participants also described the intervention as being difficult. Given the demanding level of analytical thinking that might be required for EW (e.g., Batten, Follette, Rasmussen Hall, & Palm, 2002; Burton & King, 2004; Gallant & Lafreniere, 2003; Hoyt & Yeater, 2011; Johnston et al., 2010; Kearns et al., 2010, MacKenzie et al., 2007; Ryan, 2011), it seems reasonable that some clients using EW as treatment might

require more time for this task. In addition, more time to engage with EW might assist populations, discussed above, who have not shown a large response to EW.

Importance of Gratitude

Study 2 introduced a possible mechanism of change for the EW intervention: increased gratitude for social support. Overall, 100% of participants identified changes in thankfulness, gratitude, and appreciation as something they perceived as important for change in the EW. This included increased verbalizations of thankfulness to others, realizing a previous lack of gratitude for support, feeling lucky, redefining what to feel thankful for, and explicitly noting that the EW task was responsible for this increase in thankfulness. Given that perceived social support can be defined as the belief or perception that one's social support network is supportive enough (Cobb, 1976), it is possible that the intervention led to realizations and gratitude for one's network as being "enough." It is therefore possible that this increase in gratitude reported by participants in Study 2 led to some of the positive results found in Study 1. Namely, increased gratitude may be related to the increases in perceptions of social support, and decreases in excessive reassurance seeking and depressive symptoms.

No previous research, to my knowledge, has specifically examined the role of gratitude in Pennebaker's EW paradigm. However, given that other research on the EW intervention has examined the general instructions related to stress, it is possible that this increase in gratitude is unique to my intervention specifically targeting social support. There is, however, a large body of research that indicates that gratitude and activities that increase gratitude can lead to mental health benefits (e.g., Boiler et al., 2013; Gander et al., 2013; Kleiman et al., 2013; Senf & Liao, 2013; Sergeant & Mongrain, 2014; Toepfer et al., 2012; Wong et al., 2016). Furthermore, there is gratitude research which indicates that increases in gratitude predict increases in perceptions of

social support and decreases in stress and depressive symptoms (Algoe et al., 2008; Emmons & McCullough, 2003; Froh, Kashdan et al., 2009; Froh, Yurkewicz et al., 2009; Kendler et al., 2003; Krause, 2009; Lambert et al., 2012; McCullough, Emmons, & Tsang, 2002; Seligman et al., 2005; Wood et al., 2008). Recent research even indicates that gratitude can lead to increased positive life events, which in turn can buffer against depression (Disabato et al., 2017). It is interesting to note that while previous research has found these increases in gratitude due to engaging in a task that specifically targets gratitude (i.e., writing gratitude letters; Senf & Liao, 2013; Toepfer et al., 2012; Wong et al., 2016), participants in my Study 2 reported increases in gratitude after writing about instances of social support they had received each day.

This possible mechanism has important implications for future EW research and interventions. First, it is imperative that research examine gratitude as a potential mechanism of change in EW. Unfortunately, my dissertation does not provide the data to examine this conjecture. Second, if gratitude is a mechanism for change, then targeting it, or using more positive EW instructions/prompts might be a helpful target for future EW interventions. As established in the General Introduction, one alternative treatment approach to traditional psychotherapeutic interventions is the use of “positive activity interventions” (PAIs), which have been shown to be effective in increasing well-being, and decreasing the severity of depressive symptoms in both depressed and non-depressed samples (Boiler et al., 2013; Sin & Lyubomirsky, 2009). If focused on gratitude, EW could be one of these PAIs. Last, my results highlight the need for EW researchers to link their studies to the gratitude and positive psychology literature.

The Importance of Reflection and Shifting Perspectives

Several aspects of my results from both Study 1 and Study 2 speak to the importance of shifting perspectives in EW. First, participants in the experimental group in Study 1 were more likely to show cognitive processing (e.g., using more causal thinking and insight words) in their writing, demonstrating a potential shift in perspective during the course of study. Second, participants in Study 2 specifically referred to reflection as an important process variable during the EW task and noted several related content themes including noticing, increased awareness and attention, redefining what is considered social support, that EW changed their perspective, and realizing that there are different types of supports.

These findings are consistent with the literature that indicates that writing can lead to a change in perspective and increased cognitive processing (Pennebaker & Chung, 2011). This change in perspective and increased cognitive processing in writing are also connected to some of the main proposed theories for how EW works. Specifically, it has been proposed that increased cognitive processing in writing allows for individuals to achieve a causal understanding of an event and to understand events within a broader context. Additionally, this increase in cognitive processing can also lead to an organization of events into a coherent narrative (Pennebaker & Chung, 2011). Researchers have used measurements of the use of causal thinking and insight words as an indicator of increased cognitive processing, and have found that individuals who use more causal and insight words in their writing have been found to have to most benefits from EW (e.g., Boals, 2012; Frattaroli, 2006; Graybeal et al., 2002; Jaeger, Lindblom, Parker-Guilbert, & Zoelner, 2014; North et al., 2013; Pennebaker & Chung, 2011; Pennebaker, Mayne, & Francis, 1997; Pennebaker & Seagal, 1999). A related proposed mechanism for how EW works is that it induces a change in perspective for the writer. It has

been proposed that a change in perspective allows for a better understanding of one's problems and their reactions to them (Pennebaker & Chung, 2011). This change in perspective has typically been measured by identifying a shift in pronoun use (i.e., shifting from "I" to "we" or vice versa) over days of writing. Studies have found that individuals who shifted their perspective most often in their writing had greater benefits from EW (Campbell & Pennebaker, 2003; Jaeger et al., 2014; North et al., 2013; Pennebaker & Chung, 2011). Together, both studies of my dissertation lend further evidence to support these theoretical underpinnings of EW.

Multiple Indicators of EW as a Positive Therapeutic Experience

My dissertation research provided overwhelming evidence that participants perceived the EW as a positive therapeutic experience. This is consistent with previous EW research. For example, across a number of studies, the majority of participants have reported having a positive attitude towards the EW task (Frattaroli, 2006). Additionally, one study found that 98% of participants would choose to take part in an EW study again (Pennebaker, 1997a).

Results from Study 1 indicated that overall, participants in the experimental group experienced increased in perceptions of social support, and reductions in both depressive symptoms and excessive reassurance seeking behaviours. Additionally, those in the experimental group also tended to have a more positive emotional tone in their writing as compared to those in the control group. These results suggest engaging in the EW task focused on social support was a positive therapeutic experience for participants.

There were a number of results that indicate that participants in Study 2 also experienced the EW task as a positive therapeutic activity. Eighty percent of the participants literally described the EW task as a positive experience without being prompted and 60% of participants noted that the EW task allowed for a positive reflection on their day. Participants noted a number

of positive cognitive changes due to the writing, such as increased gratitude for their social support, increased awareness of their social supports, noticing smaller acts of social support as supportive. Participants also noted some positive behavioural changes that occurred due to the writing, such as providing more support to others, recommending the EW intervention to others, and intending to continue engaging in the writing or trying to pay more attention to their supports in the future. The results also suggested that this intervention may be self-reinforcing to some participants.

Positive participant experiences are a substantial strength for EW interventions. As previously discussed estimated depression rates among university students (between 13-17.3%; Blanco et al., 2008; Eisenberg, Hunt, & Speer, 2013; Hunt & Eisenberg, 2010; Soet & Sevig, 2006; Zivin, Eisenberg, Gollust, & Golberstein, 2009) are typically higher than rates in the general population (7%; APA, 2013). Additionally, university students may be less likely to seek out or receive traditional psychotherapy compared to individuals in the general population (e.g., Herman et al., 2011). There are a number of proposed explanations for this gap in treatment, including lack of access to effective treatment, unwillingness to access treatment due to stigma, and lack of knowledge about the treatability of depression (Herman et al., 2011). Therefore, having an alternative treatment that is experienced as positive to participants is important.

Another benefit to this EW intervention is that it is quite brief, allowing for people to utilize it without large interruptions to their daily schedule. In the western hemisphere, there has been a noted increase in perceived “busyness” in the past decade, with many people having to deal with a combination of demands from both work and family life (Vercruyssen, Roose, Carton, & Van De Putte, 2014). Therefore, having an intervention that does not take up much time in participants’ daily schedules is important. This may provide an opportunity for people to engage

in an intervention who may feel “too busy” to engage in traditional psychotherapy. Additionally, EW delivered online gives access to a larger number of potential people (e.g., Katz & Rice, 2002; Zickurh & Smith, 2012), and may allow for those who may not have access to, or seek traditional interventions for depression, to have access to some form of intervention.

In summary, compared to other interventions, EW might be more rewarding and engaging. As previously mentioned, it might also be self-perpetuating. Given its successful effect and appeal, my EW intervention is well positioned for use addressing college students’ perceptions of social support and possible depressive symptoms.

Strengths, Limitations, and Future Directions

As previously mentioned, strengths and limitations specific to Study 1 and Study 2 are discussed in their respective Discussion sections. Here, I highlight some more broad strengths and weaknesses that apply to my dissertation research as a whole.

A major strength of both studies, as previously elaborated, is that they utilized novel EW writing instructions specifically focused on social support, which were designed to specifically target perceptions of social support, a factor related to depression vulnerability. More specifically, this tested an intervention aimed specifically at college students who are at an increased risk of developing depression, rather than merely using this population as a convenience sample.

Second, both studies delivered the intervention in an online format. This delivery method allows for a large number of people to have access to it (e.g., Katz & Rice, 2002; Zickurh & Smith, 2012), and may allow for those who may not have access to, or seek traditional interventions for depression, to have access to some form of intervention. Being online means that people can access it from home, and even allows those who may not have the Internet at

home to access the intervention at other locations such as libraries or Internet cafes or even via cell phone. Online delivery of interventions also has other distinct advantages. First, participants may disclose more in Internet-based venues than they would normally disclose in person (Hanna et al., 2005; Joinson, 2001; Joinson et al., 2007; Nicholas et al., 2004). Additionally, online delivery allows participants to read and write at their own pace, allows for greater anonymity and confidentiality, and there is less dependency on a support provider, meaning that participants can have a greater degree of self-efficacy (Pfiel, 2009). It has also been suggested that engagement in therapeutic written disclosure may increase in an online environment by allowing participants the opportunity to focus on a single theme while also relieving them of other social expectations (Wright & Bell, 2003).

Although Study 1 demonstrated that social support-focused EW can increase perceptions of social support, one weakness of my dissertation research is that I cannot speak to potential mechanisms of this effect. Although comparison of the LIWC between groups in Study 1, as well as the closer examination of change within the experimental group in Study 1 and the participant-reported perceptions of process and outcomes can generate some hypotheses regarding the mechanisms of change, my data cannot identify any more conclusively. It is possible that this treatment effect is driven primarily by changes in depressive symptoms. In other words, it may be that the decreases in depressive symptoms predicted by the use of social and family referent words led to increases in perceived social support. Or, the effect could be due to the increases in gratitude or shifts in perspective (i.e., cognitive processing) described in Study 2. It is important for future research to replicate my studies and incorporate examinations of potential mechanisms of change in order to further develop and streamline this intervention. Related, it will also be important for future research to develop and examine other forms of

targeted EW interventions to expand upon my preliminary evidence for this social support-focused intervention. Related, it might also be helpful for future research to directly compare social support-focused EW to the traditional experimental EW intervention to ascertain their effects in comparison to one another.

Measurement concerns also impact the conclusions of my dissertation. For example, it is unknown whether these changes would be classified as a clinically significant or reliable, as there is not enough information available for the instruments used to calculate these changes. However, as noted in an earlier section, the effect sizes, as measured by η^2 in paired t-tests, revealed effect sizes for the intervention that would be classified as “large” (i.e., $> .14$, Cohen, 1988), which gives some indication that the changes seen in perceptions of social support, excessive reassurance seeking behaviours, and depressive would be considered to be large. Additionally, severity of depressive symptoms was measured by a self-report measure in Study 1, and it is therefore unknown how the results would have looked if assessments made by clinical interview were used instead. It may be that the self-report measure used resulted in a higher percentage of participants being identified as having at least sub-threshold depression, and that assessment by clinical interview may have resulted in a more accurate picture of how many participants actually met criteria for Major Depressive Disorder. Although Study 1 benefitted from a low attrition rate, with only 7 (6.0%) participants not completing the study, Study 2 had 3 (23.1%) participants not complete the interview portion of the study. This means the results must be interpreted with caution, as it is unknown why these participants did not complete the study.

Both studies utilized undergraduate student samples, and therefore, the results are not generalizable to individuals with a clinical diagnosis and/or more severe levels of depression. It is possible that although the intervention was effective in an undergraduate student sample where

35% of participants met criteria for “at least subthreshold” depression, it would not be effective in a clinical sample. For example, for individuals with more severe depressive symptoms, motivation may be lacking to engage in the writing, or the writing may become focused on negatives as opposed to remaining focused on the positive aspects of social support. In addition, college students are used to engaging in writing, and other participants may not be as comfortable with writing. Alternatively, for individuals who are depressed and who have become isolated, writing about instances of received social support may be very difficult indeed. Future studies should focus on clinically depressed samples to determine whether the effects of my studies are generalizable to this population.

Another limitation is that the interviews in Study 2 did not ask participants about changes in perceptions of social support, excessive reassurance seeking, and depressive symptoms. Therefore, Study 2 could not confirm the results of Study 1 using a qualitative approach. Future studies should ask participants about changes in these areas to help confirm the results of Study 1 using qualitative methods.

Additionally, the majority of participants were women (74.5% in Study 1, and 100% in Study 2), and therefore results may not be generalizable to men. It is possible that females preferentially signed up for these studies based on their descriptions, which stated that participants would be asked to engage in expressive writing, a task that may be preferred by females. However, it may also be that the participant pool was largely female, and thus led to more females signing up for the studies. Although it is possible that the effects would be less prominent for a sample with more men, it is important to note that in past studies, studies that had more men have actually had larger effect sizes (Frattaroli, 2006), and therefore this intervention may actually be more effective for men.

With regards to future research, this area could benefit from studies employing mixed-methods designs, and combining the methods from Study 1 and Study 2 into a single study. This would allow for both quantitative and qualitative analyses, strengthening the results of both. Specifically, it would allow researchers to see both how effective the intervention was, as well as allow for the gathering of important feedback from participants about what the writing impacted for them. To integrate both studies would be relatively simple. As in Study 1, participants would be assigned to the control or EW condition. Then, participants would complete initial measures of depressive symptoms, perceived social support, and excessive reassurance seeking. Then, they would engage in four days of writing about instances of social support. They would then complete follow-up measures of depressive symptoms, perceived social support, and excessive reassurance seeking. As part of the debriefing process, participants would then be invited to participate in feedback interviews to gauge what they thought of the writing process, and what outcomes they experienced as a result of the writing. This type of study format would be beneficial because it would allow for a more complete picture of whether the intervention was effective for participants as well as provide insight on how the intervention led to the outcomes. Namely, employing a mixed methods design allows for “triangulation”, wherein the two research methods are used to ensure that the results are found due to an underlying phenomena and not a result of the method used (Johnson, Onwuegbuzie, & Turner, 2007). Additionally, allowing participants to provide feedback on the study can allow for improvements of the intervention for future participants.

Implications

Given that this intervention has shown to be effective, clinicians could begin to use this writing task as an adjunct to treatment for depression. This would mean that clinicians would

assign the writing task as homework to clients. This could help to increase perceptions of social support, and alleviate some depressive symptomology, as well as decrease excessive reassurance seeking behaviours. In addition, based on the results of Study 2, this intervention could also help to increase gratitude in clients and make them more aware of their social supports, further enhancing the effects of utilizing this intervention in addition to regular treatment.

The results of Study 1 demonstrated that this intervention was effective at reducing depressive symptoms in individuals with some depressive symptoms; it therefore holds potential as a preventative measure against the development of depressive symptoms. It could be administered as a standalone intervention to individuals at risk for developing depression, such as new undergraduate students, many of whom experience a large number of stressors related to transitioning into university. Dealing with these high levels of stress can put students at risk for developing depressive symptoms (e.g., Hammen, 2005; Liu & Alloy, 2010; Monroe & Reid, 2009). It is estimated that rates of depression are higher among university and college students than in the general population (Blanco et al., 2008; Eisenberg, Hunt, & Speer, 2013; Hunt & Eisenberg, 2010; Soet & Sevig, 2006; Zivin, Eisenberg, Gollust, & Golberstein, 2009), however, they may be less likely to seek or receive treatment (e.g., Herman et al., 2011). These students are also at risk for having lower grade point averages and for dropping out prior to completing a degree (Eisenberg, Golberstein, & Hunt, 2009). Therefore, it is important that interventions such as the EW intervention used in these two studies be studied and utilized to treat and prevent the development of depressive symptoms.

Given that we know that depression affects not only those who are depressed but individuals around them (e.g., Cicchetti & Toth, 1998; Cummings & Davies, 1994; Hammen, et al., 2004; Pilowsky et al., 2006), it may be that decreasing depressive symptoms in the depressed

individual might have a cascade effect on others. This would increase the efficacy and cost-effectiveness of an already cost- and time-efficient intervention. Moreover, given that participants reported that they would recommend this intervention to others, it may benefit not only those who utilize it initially, but also their social networks.

Should this intervention be found to be effective in those with a diagnosis of major depression, it would have important treatment implications, given that it is time- and cost-efficient, and easily accessible to a large number of individuals. Due to the fact that engaging in an online EW intervention focused on social support can be done on one's own, without the involvement of a clinician, it may also help individuals to feel empowered to have their recovery "in their own hands" and giving them an internal locus of control. Additionally, it could be used as an adjunct to therapy for individuals in treatment for depression. This could therefore be a useful tool for clinicians to use with clients who have low perceptions of social support.

Conclusion

Overall, the current research project makes several novel and important contributions to the literature on EW interventions for depression. Specifically, the two studies in this document examined the effectiveness of an EW intervention focused on social support.

Study 1 provided quantitative evidence that an EW intervention focused on social support can be effective at increasing perceptions of social support and decreasing both excessive reassurance seeking behaviours and depressive symptoms. It also suggested that compared to participants in the control writing condition, those in the EW condition utilized more positive and negative emotion words, more causal and insight words, and more social and affiliation words. These findings demonstrated that the EW instructions helped participants to write with a more emotional tone, using more cognitive language, and write more about their social

interactions and drive for affiliation with others. Study 1 also provided evidence that the use of affiliation words was associated with reductions in excessive reassurance seeking and that the use social and family referent words was related to reductions in depressive symptoms. Surprisingly, no word use categories were associated with increases in perceptions of social support, and it is possible that perceptions of social support increased as a result of depressive symptoms decreasing. Alternatively, it may be that the increases in gratitude for and awareness of social support reported by participants in Study 2 was related to the changes found in perceptions of social support. Study 2 offered qualitative evidence that engaging in a social support-focused EW intervention can increase gratitude for and awareness of social support, and can lead participants to redefine what constitutes social support. Both studies together suggest that this targeted EW intervention holds potential as a way to help increase perceptions of social support and decrease both excessive reassurance seeking and depressive symptoms. It therefore may be helpful as a preventative measure against developing depression or as an intervention for depression itself.

The findings of the two studies are promising, and indicate that this social support targeted EW intervention holds promise in increasing perceptions of social support and decreasing excessive reassurance seeking and depressive symptoms. These preliminary results indicate that this intervention may be useful as a preventative intervention for depression, and may be useful in decreasing depressive symptoms in individuals who have depression. More research is needed, both to replicate the results found in these two studies as well as to investigate whether this intervention would be effective in a clinical sample.

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Appendix A: The Centre for Epidemiological Studies Depression Scale-Revised (CESD-R)

<u>Instructions:</u> Below is a list of the ways you might have felt or behaved. Please check the boxes to tell me how often you have felt this way in the past week or so.	LAST WEEK			
	Not at all <i>or</i> Less than 1 day	1-2 days	3-4 days	5-7 days
My appetite was poor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I could not shake off the blues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I had trouble keeping my mind on what I was doing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt depressed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My sleep was restless.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt sad.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I could not get going.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nothing made me happy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt like a bad person.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I lost interest in my usual activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I slept much more than usual.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt like I was moving too slowly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt fidgety.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was tired all the time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I did not like myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I lost a lot of weight without trying to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I had a lot of trouble getting to sleep.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I could not focus on the important things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix B: Multidimensional Scale of Perceived Social Support (MSPSS)

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the “1” if you **Very Strongly Disagree**

Circle the “2” if you **Strongly Disagree**

Circle the “3” if you **Mildly Disagree**

Circle the “4” if you are **Neutral**

Circle the “5” if you **Mildly Agree**

Circle the “6” if you **Strongly Agree**

Circle the “7” if you **Very Strongly Agree**

- | | | | | | | | | |
|-----|--|---|---|---|---|---|---|---|
| 1. | There is a special person who is around when I am in need. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | There is a special person with whom I can share my joys and sorrows. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. | My family really tries to help me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. | I get the emotional help and support I need from my family. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. | I have a special person who is a real source of comfort to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. | My friends really try to help me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. | I can count on my friends when things go wrong. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. | I can talk about my problems with my family. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. | I have friends with whom I can share my joys and sorrows. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. | There is a special person in my life who cares about my feelings. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. | My family is willing to help me make decisions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. | I can talk about my problems with my friends. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Appendix C: Depressive Interpersonal Relationships Inventory: Reassurance Seeking Subscale
(DIRI-RS)

Instructions: For the following questions please circle the *number* most appropriate to you using the following scale:

- 1 = No, not at all
2 = No, hardly ever
3 = Not really
4 = I'm not sure
5 = Yes, somewhat
6 = Yes, quite often
7 = Yes, very much
-

1. In general, do you find yourself often asking people you feel close to how they truly feel about you?

1	2	3	4	5	6	7
no, not at all	no, hardly ever	not really	I'm not sure	yes, somewhat	yes, quite often	yes, <u>very</u> much

2. In general, do you frequently seek reassurance from the people you feel close to as to whether they really care about you?

1	2	3	4	5	6	7
no, not at all	no, hardly ever	not really	I'm not sure	yes, somewhat	yes, quite often	yes, <u>very</u> much

3. In general, do the people you feel close to sometimes become irritated with you for seeking reassurance from them about whether they really care about you?

1	2	3	4	5	6	7
no, not at all	no, hardly ever	not really	I'm not sure	yes, somewhat	yes, quite often	yes, <u>very</u> much

4. In general, do the people you feel close to sometimes get “fed up” with you for seeking reassurance from them about whether they really care about you?

1	2	3	4	5	6	7
no, not at all	no, hardly ever	not really	I'm not sure	yes, somewhat	yes, quite often	yes, <u>very</u> much

Appendix D: Consent Form for Study 1

Project Title: Expressive Writing and Perceived Social Support

Researcher(s): D. Sebastian Saint, Clinical Psychology Graduate Student, Department of Psychology, University of Saskatchewan, sebastian.saint@usask.ca

Supervisor: Jorden A. Cummings, Ph.D., Assistant Professor, Department of Psychology, University of Saskatchewan, 306-966-7147 or jorden.cummings@usask.ca

Purpose(s) and Objective(s) of the Research:

This research is designed to investigate the relations between daily expressive writing, perceived social support, depressive symptoms, and reassurance seeking behaviours.

Procedures:

- This study will take place entirely online, using study links e-mailed to me by the researcher.
- First, I will be asked to indicate my gender, age, and ethnicity so that the researcher can describe these characteristics of the larger sample. I will also be asked to complete questionnaires assessing my mood, level of social support, and reassurance seeking behaviours.
- I will then be asked to write daily for 10 minutes according to instructions e-mailed to me each day.
- After those four days, I will complete follow-up questionnaires.
- This study will take approximately 60 minutes.
- Please feel free to ask any questions regarding the procedures and goals of the study or your role.

Potential Risks:

- There are no known or anticipated risks to you by participating in this research
- I understand that should I feel uncomfortable at any time, I have the right to refuse to answer any questions or withdraw from this study at any time without penalty. I can also contact the supervisor to discuss my reactions to the study.
- Should I feel distressed by these questionnaires I may contact the supervisor, Jorden A. Cummings, Ph.D. at 306-966-7147 or jorden.cummings@usask.ca or the Student Counselling Centre at 306-966-4920
- Debriefing will occur on the final day of participation after completing the follow-up questionnaires.

Potential Benefits:

- By participating in this study, I will have the opportunity to learn more about psychology and research in general. In addition, my participation will help researchers

understand how expressive writing may influence perceived social support, depressive symptoms, and/or reassurance seeking behaviours.

- Participation in this study may help to improve mood over time, as previous research indicates that daily expressive writing has a positive impact on mood.

Compensation:

- If I am a student recruited from the Psychology Participant Pool, I will receive 2 course credits for participation in this study.

Confidentiality:

- Should I indicate that I am significantly distressed, to the point of *imminent intent to harm myself*, I will be contacted by the researcher to discuss my safety. If the researcher determines that I am not safe, my confidentiality may be waived, without my permission so that appropriate help can be sought. In addition, the researcher may waive my confidentiality without my permission if I report homicidality, or that I am an imminent threat to someone else's safety, or I report suspected child abuse.
- I understand that my name or personal identifying information will not be stored with my data, and that all responses I provide in this study will be kept confidential. I understand that any information derived from this research project that personally identifies me will not be disclosed by the researchers.
- Direct quotes from my debriefing interview may be included in a write-up of the results, but these quotes will be de-identified, and my name or identifying information will not be connected to these quotes in any way.
- **Storage of Data:**
 - My research records will be stored for a minimum of 5 years on a password protected computer in a secured office. My e-mail is required so that I can receive reminders to complete the expressive writing task, but my data will be stored using a unique ID number. My name, or personal identifying information and individual responses will not be stored in the same data files.
 - When the data is no longer required, it will be destroyed.

Right to Withdraw:

- Your participation is voluntary and you can answer only those questions that you are comfortable with. You may withdraw from the research project for any reason, at any time without explanation or penalty of any sort.
- Whether you choose to participate or not will have no effect on your position [e.g. employment, class standing, access to services] or how you will be treated.
- You may withdraw for any reason, until the time that the data from this project is pooled (i.e. all participants' data is combined), without penalty or loss of my credit with the Psychology Subject Pool.
- If you withdraw prior to half an hour into the study (e.g. you only complete the initial questionnaires and do not complete the writing task or follow-up questionnaires) you will

receive 1 credit. If you withdraw after thirty minutes you will receive 2 credits. One credit is assigned for every half an hour or portion thereof.

- After the data is pooled, it will not be possible to withdraw your data.
- If you withdraw from the research project, any data that you have contributed will be destroyed at your request.

Follow up:

- To obtain results from the study, please contact the supervisor Jorden A. Cummings, Ph.D. approximately one year after your participation.

Questions or Concerns:

- Contact the researcher(s) using the information at the top of page 1;
- This research project has been approved on ethical grounds by the University of Saskatchewan Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca (306) 966-2975. Out of town participants may call toll free (888) 966-2975.

Consent and Continued or On-going Consent:

As data in this study will be collected over multiple days, your continued participation and completion of daily writing and questionnaires implies your continued consent to participate and indicates that you understand the above conditions of participation in this study.

Your agreement below indicates that you have read and understand the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to participate in the research project. Please print a copy of this page to obtain a copy for your own records. Alternatively, you may contact the researcher at the contact information provided above and one will be sent to you.

If you consent to participate in this study please click "Yes".

If you click "No" you will not be able to complete the questionnaires, but you will still earn 1 credit for your participation.

Appendix E: Communications with Participants for Daily Writing Reminders

Dear Participant,

This is your reminder for Day 1 [2, 3, or 4] of the daily writing. Please click this link:

[\[Invite Link\]](#)

to take the survey. You will have until 2:00AM to complete this day of writing.

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks,

-Sebastian Saint

Appendix F: Daily Writing Instructions

Experimental Group:

For the next 10 minutes, please write about any social support that you received today (this can be from anything as small as a friend checking in on you, e.g., “how are you doing?”, to someone helping you with studying, or someone comforting you if you were feeling upset). If you cannot think of a time that you were socially supported today, think of a time when you felt especially supported by someone else. In your writing, try to really let go and explore your very deepest emotions and thoughts around being supported. Try to explore what it means to you to be supported by others, how it makes you feel, etc. All of your writing will be completely confidential.

Control Group:

For the next 10 minutes, please write about how you spent your time today. Try to be as objective as possible, and try not to include emotions. Be as descriptive as you can, and tell all of the details of what occurred over the course of the day today (from the time you woke up until the time of this writing). All of your writing will be completely confidential.

Appendix G: Writing Samples

Experimental Group:

Today I was feeling a bit down on myself, missing family members back in Edmonton, and what not. Today I talked to my friend that is coming down from Edmonton to visit me, he lifted my spirits by just simply saying in a text "I'm on my way, see you in five hours." Seeing a familiar face will be good for me, I've felt drained in the past couple weeks of living here, I've had to make new friends here, know the city, go to university. It's been very overwhelming, however I've met a new girl that is in most of the same classes as me, and she's been here to support me when I've been down, she said "well you have me, I'm here for you." It gave me great comfort that someone I've just met and grown so close to was here for me for anything. She made me realize that I'm here for my future, and even though I miss home that it's not going anywhere, and that I will see them again soon. I feel back on track with school, and not so down on myself. Today was a good day. People like my new friend are what make me want to push myself, and influence others the way she has influenced me. I can't wait for what Saskatoon has to offer me, and the people here are great. Every day I come home from school, and my uncle pep talks to me about health, and the gym and eating right, he makes me want to push myself into getting more healthier, today he said "You're doing great here, I know things are tough, but you got this, your strong." Him saying those words let me know that I am doing okay for moving to a new city, and it let me know that I can always go to him for things. I have great people in my life, each day they influence me, and give me good advice. I cannot be more grateful.

Control Group:

I woke up at 6am this morning as I have a biology lab at 8:30am and I live on the other side of the city. Not that I actually woke up at 6am, I just set my alarm at 6am and then kept hitting snooze until 6:50 when I realized I was going to be late for my bus if I didn't wake up then. So I brushed my hair, put some clothes on and ran out the door. My partner woke up early so that we could see each other before my Lab. We spent 20 minutes together before I went into biology. I had a spot test and then we covered kingdom Plante. I let my lab about around 10 and met up with my partner once again. We had coffee and talked until 11:20 when we walked to my partner's class together. I then sat in lower place until a friend from high school bumped into me. We then chatted until I had to leave at 12:50 for Psychology. My partner joined me for Psychology and brought me food. Today in Psychology we covered the brain, the parts of the brain and how it functions consciously and unconsciously. When class concluded my partner and I then went to lower place to eat together for a bit before catching our bus. We then drove around for an hour looking for a type of game. My partner and I then went back to my house and watched an anime together called Sword Art Online. Then my family, my partner and myself all sat down and ate a lasagna, cooked by my mother. After that my mother, my partner and myself went to Walmart to find a gift and a card for a friends birthday, We stopped at Tim Horton's and got what was now my 3rd coffee of the day at around 8pm. My partner and I went back to my house to watch more Sword art online. My partner left at around 8:30pm. I am currently writing this and about to head off to bed as I need to be up early yet again tomorrow.

Appendix H: Debriefing Form for Study 1

Debriefing – Expressive Writing and Perceived Social Support

This study examined the possible positive effect of daily writing about experiences of social support on levels of perceived social support, depressive symptoms, and reassurance seeking behaviours. You completed a number of questionnaires, and daily wrote about either your experiences of social support, or how spent each day for four days.

We are interested in determining whether a short expressive writing intervention about social support is potentially beneficial in increasing peoples' perceptions of social support, which may in turn decrease levels of depressive symptoms, as well as decrease levels of reassurance seeking behaviours. Research has established the many positive effects of expressive writing, but most researchers have not yet attempted to target specific outcome variables, as is the case in this study.

You should understand that we will be looking at overall trends across participants and not findings for specific individuals. All results will be reported at the aggregate level. These data will help us to better understand the potential benefits of expressive writing, as well as help in the design of future studies in this area.

If you have any comments or questions regarding the conduct of this research or your rights as a research participant you may contact Sebastian Saint at sebastian.saint@usask.ca, Dr. Jorden Cummings (study supervisor) at 306-966-7147, Dr. Lorin Elias (Head of the Psychology Department at the University of Saskatchewan) at 306-966-6657, and/or the Ethics Office at 306-966-2084. Furthermore, if you would like additional information about the study and its results, please do not hesitate to contact Sebastian Saint by the e-mail address above or Dr. Jorden Cummings at the above phone number or by e-mail at jorden.cummings@usask.ca.

Please print this page to obtain a copy of this debriefing form for your records. Alternatively, you may contact the researcher at the contact information provided above and one will be sent to you.

Appendix I: Feedback Interview Questions

Probe: The purpose of this interview is to gain a deeper understanding of your experience of writing about social support. I would like to hear, in as much detail as possible, about your experience of writing about social support.

Secondary Probe: I have some questions here, but you can talk about anything you want related to the writing that you did

Additional Probes:

Did you notice any changes in gratitude for social support, or did your gratitude stay the same?

- **Tell me about if you think the writing affected your gratitude at all**

So you've said that this task made you more aware of/more grateful for your social support. How do you think it did that? *(What specific components of the task changed your gratitude?)*

Do you think that the writing task changed your view on what counts as social support? *(Did the task change how you define social support?)*

Do you intend to continue this task? *Do you think that thinking about/reflecting on your support is/will be as effective as writing about it?*

What benefits did you see in the writing?

Did the writing change the way you plan to act towards others?

Tell me about what thoughts the writing brought up for you.

Tell me about how doing the writing task felt for you.

Do you think you would have noticed the support without doing the writing task?

Final Probe (Ask at the end of the interview): Was there anything about the writing that you didn't like?

Appendix J: Process of Writing Theme Definitions

- 1) **Comments about time limit** – Participants commented about the time limit. Some found the time limit restrictive, whereas others found the time limit to be appropriate, and were surprised at how much they could accomplish within 10 minutes.
- 2) **Comparing writing to thinking** – Participants compared writing to thinking/reflecting. Some participants thought writing and thinking are equivalent in terms of effectiveness, and others thought writing would be more beneficial.
- 3) **Difficulty of writing** – Participants commented on the difficulty of writing, with some noting that it was quite difficult for them to come up with things to write, whereas others found the writing to be easy.
- 4) **Reflection on Day** – Participants noted that the writing was a form of reflection on their day, and that this process of reflection was nice.
- 5) **Writing was a positive experience** – Participants commented about the writing being a positive experience for them. No participants reported having a negative writing experience.
- 6) **Miscellaneous** – Process of writing codes that did not fit into any of the process of writing themes.

Appendix K: Outcomes Theme Definitions

- 1) **Thankfulness, gratitude, appreciation** – Participants commented on being more thankful for their support due to the writing, as well as commented on taking their support for granted before the writing.
 - **Expressing thankfulness** – Participants noted that the writing led them to be more outwardly thankful for their support.
 - **Lack of gratitude/taken for granted** – Participants noted that before the writing intervention they took their support for granted and did not feel thankful for it.
 - **Luckiness** – Participants commented on feeling lucky to have the support that they do.
 - **Redefining what to be thankful for** – Participants noted that the writing changed what support they are thankful for.
 - **Writing promoted thankfulness** - Participants commented on feeling increased thankfulness for their supports due to the writing
- 2) **Noticing, increased awareness/attention** – Participants commented on being more aware of their social support due to writing about it, as well as commented on how they overlooked their support before the writing.
 - **Realization of good support network** – Participants noted that they had good support networks, and that their supports would be there for them in times of need.
 - **Not noticing/overlook** – Participants commented on how before the writing they tended to overlook or not notice the support that they receive.
 - **Writing promotes awareness** – Participants noted that the writing promoted more awareness of their supports and brought more attention to them.
- 3) **What is considered social support** – Participants noted that the writing changed their opinion on what counts as social support.
- 4) **Supportive to others** – Participants noted that the writing encouraged them to be more supportive to others.
- 5) **Importance of social support** – Participants commented on the impact of social support in their lives as well as what life may be like without support.
 - **Impact of social support** – Participants commented on how much social support impacts them both on a daily basis and in general.
 - **What it would be like without support** – Participants commented on what life might be like without supportive others.
- 6) **Feelings related to support** – Participants reported having different feelings related to support that they received.
 - **Strength** – One participant reported feeling stronger due to having others there to support them.

- **Support and Happiness** – Participants noted that receiving support made them happier.
 - **Support as comfort** – Participants reported feeling comforted knowing that they have others around to support them.
- 7) **Writing changed perspective** – Participants commented on the writing changing their perspective or outlook.
- 8) **Going forward** – Participants commented on what they will do going forward. This included continuing to write about social support, continuing to be more aware of social support, and reflecting on social support each day.
- 9) **Recommend EW to others** – Participants said that they would or had already recommended expressive writing about social support to others because they themselves had found it to be beneficial.
- 10) **Realizing that there are different supports** – Participants noted that they realized there are different kinds of support, and that different kinds of support are required in different situations.